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THESIS

LEADERSHIP SELECTION AT THE U. S. NAVAL ACADEMY: AN ANALYSIS OF BRIGADE LEADERS AND THEIR FLEET SUCCESS

by

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August 1998

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This research analyzes the selectivity and career success of midshipmen leaders from the United States Naval Academy. Those studied are former midshipmen from the classes of 1980 through 1985 who were carefully screened by USNA's leadership selection process to hold significant leadership positions in their final year at the Academy. Using data compiled from several sources, non-linear logistic regression methodology is employed to determine statistically significant factors for selection and whether such individuals have a statistical advantage in later promotion as officers. Qualitative data in the form of surveys are used to analyze current midshipmen satisfaction with the selection process and recent midshipmen leaders. Results indicate that these midshipmen leaders were the most promising candidates for admission to the Academy and the most successful midshipmen in all areas of performance, especially academics and military conduct grades. They also are found, as a whole, to have a higher promotion rate at the Commander promotion board. However, analysis of the views of recent midshipmen and midshipmen leaders indicates that other measures, such as peer and subordinate evaluations, may improve the process of identifying the most promising leaders and role models for the Brigade of Midshipmen and the U. S. Navy.

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LEADERSHIP SELECTION AT THE U. S. NAVAL ACADEMY: AN ANALYSIS OF BRIGADE LEADERS AND THEIR FLEET SUCCESS

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requirements for the degree of

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ABSTRACT

This research analyzes the selectivity and career success of midshipmen leaders from the United States Naval Academy. Those studied are former midshipmen from the classes of 1980 through 1985 who were carefully screened by USNA's leadership selection process to hold significant leadership positions in their final year at the Academy. Using data compiled from several sources, non-linear logistic regression methodology is employed to determine statistically significant factors for selection and whether such individuals have a statistical advantage in later promotion as officers. Qualitative data in the form of surveys are used to analyze current midshipmen satisfaction with the selection process and recent midshipmen leaders. Results indicate that these midshipmen leaders were the most promising candidates for admission to the Academy and the most successful midshipmen in all areas of performance, especially academics and military conduct grades. They also are found, as a whole, to have a higher promotion rate at the Commander promotion board. However, analysis of the views of recent midshipmen and midshipmen leaders indicates that other measures, such as peer and subordinate evaluations, may improve the process of identifying the most promising leaders and role models for the Brigade of Midshipmen and the U. S. Navy.

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I. INTRODUCTION

A. BACKGROUND

The concept of leadership is a broad topic inspiring countless views of its importance, complexity, and necessary elements. As there are differing definitions of leadership, there are at least as many assessments of what abilities and attributes leaders must have to be effective. Numerous studies have been undertaken to validate measures of intelligence, experience, and personality for effectiveness in a variety of leadership situations. Consideration of subordinate measures has also been given in studies of identifying transformational leaders in military and other organizational contexts.

As Freeman and Taylor (1950, p.3) assert,

> *In these days of concern for the common man and talk about the common good, all fields of industry conduct a relentless search for leaders-for men equipped to shoulder responsibility for the welfare of others and for the progress of an organization.*

Though the reference to "men" in the above statement reflects the more sexually discriminant attitude in business and the military in the era from which it came, its basic precept regarding the need for leaders still applies. Research in the selection and development of leaders has provided additional insight, but far more research must be done to establish more reliable measures and methods of selecting and developing effective leaders for organizations.

The United States' military invests considerable time and money in selecting and developing leaders responsible for executing its mission of national defense. The service

academies, in particular, employ very specific selection criteria in choosing individuals from high schools, colleges, and the enlisted ranks to be commissioned as military officers. The considerable investment in these individuals requires selection criteria that are meaningful and predictive of future success; it also requires careful development of leadership abilities before these individuals receive commissions as officers and begin commanding troops and machinery capable of widespread destruction.

As part of this development, each military academy chooses, from among senior students, individuals to hold leadership positions during their last year before graduation and commissioning. These individuals administrate the daily functions and training of the lower classes at each of the academies and act as role models for peers and subordinates alike.

The intent of this thesis is to focus on the individuals chosen to lead the Brigade of Midshipmen at the United States Naval Academy in Annapolis, Maryland. Like that of its sister academies at West Point, New York and Colorado Springs, Colorado, the legacy of the United States Naval Academy (USNA), producing leaders of the highest quality for service in the Navy and Marine Corps, involves a considerable investment of time, resources, and instruction. This investment includes the opportunity for select midshipmen to hold significant positions of leadership within the Brigade, the organization of the student body, and exercise authority over their peers and the lower classes before graduating and entering the fleet as Navy and Marine Corps officers. Assignment to one of these positions is the culmination of four years of training in the "leadership laboratory," as it is often called, and is an opportunity to test and develop an individual's

ability to lead and exercise authority over others. This challenge furnishes an individual with additional privileges as well as additional authority, and managing both responsibly becomes a lesson in itself for those selected.

The individuals selected to hold "striper" positions within the Brigade have the unique opportunity to exercise leadership on a much larger scale than other midshipmen. Specifically, Company Commanders and those who hold Midshipman Lieutenant Commander (MIDN LCDR) and above positions face the unique challenge of influencing and leading a large group of their peers as well as handling a significant amount of administrative responsibilities. The Educational Guide to U.S. Service & Maritime Academies describes their responsibilities as follows,

> *Midshipmen officers, called stripers, lead the Brigade in parades, ceremonies, and daily formations. They are responsible for the conduct, military smartness, and competitive records of their units. In addition, they are in charge of the midshipmen watch organization in Bancroft Hall. The selection of three sets of midshipmen officers each academic year increases the individual opportunity for this valuable leadership experience.*
>
> *In carrying out their important new tasks, the first class midshipmen find themselves calling upon all their leadership skills developed the previous three years. This final year of practical experience finds them totally prepared to assume their coming leadership role upon graduation* (Gurney & Sheehan, 1978, p. 56).

In a thesis titled, *The development of career naval officers from the U.S. Naval Academy: a statistical analysis of the effects of selectivity and human capital*, LT Matthew Reardon (1997) explored the impact of various factors on retention and promotion to Lieutenant Commander among Naval Academy graduates. His results indicated that graduates who had held significant Brigade leadership positions did not have

a statistically significant advantage in being selected for promotion. The reasons for this may be linked to the process of striper selection. For those studied, holding a striper billet was heavily correlated to high grades in military performance, which was very significant in the promotion rates among graduates. In other words, for those with strong grades in military performance at the Naval Academy, experience as a striper may not have contributed anything additional to their performance in the fleet and their likelihood of promotion. It may be, however, that their experience as stripers does not become significant until the later career stages.

In any case, Brigade leadership positions are potentially important tools in the development of midshipmen, for those selected as well as those led by these midshipmen. As such, identifying the best-qualified individuals is paramount to maximize the usefulness of this tool. As role models for peers and subordinates, as well as key players in the mission of the Naval Academy, stripers should be selected carefully. The notion of careful selection inspires questions concerning the characteristics of those who are selected, how the selection process identifies the "best," and what their level of success implies for the measures of selection.

Consider that midshipmen arrive at the Naval Academy from a variety of backgrounds. Generally speaking, each has achieved academic excellence, been involved in athletics, and has participated in a variety of extracurricular activities. Many have held jobs, have college experience, or may have been enlisted military members. They are literally chosen from all over the country from high schools, colleges, and the enlisted

ranks, and their experience and achievement levels may vary significantly within acceptable limits for admission.

The leadership of the Brigade is ultimately chosen from among these individuals. When selecting them, does the process tend to favor academic achievement, or is previous military experience predictive of selection? Are certain pre-Academy variables predictive of selection for a striper position? If the process does tend to favor certain attributes or performance measures, are those attributes and measures predictive of success in the fleet?

To better illustrate these questions, the model on the following page is proposed (Figure 1.1). Throughout the application process, midshipman candidates are assessed in a variety of areas. In the area of academic achievement, the Academy places a great emphasis on Scholastic Aptitude Test (SAT) scores and high school class rank. Over 60 percent of the candidate multiple, which is used to rank candidates, is comprised of these elements (Reardon, 1997, p.24). Athletic achievement is considered among extracurricular activities, and in the case of certain candidates, in terms of special interest for the Naval Academy's athletic programs. Leadership experience, though not a direct contributor to the candidate multiple, may earn additional points from the admissions board that can be added to the multiple (Reardon, 1997, p.26). Leadership positions in secondary school organizations and previous military experience (enlisted, JNROTC, NROTC, etc.) provide indications of such experience. Demographics are also considered, in terms of ethnicity, sex, and prior enlisted experience, for example, to ensure that the Academy selects a diverse cross-section of candidates for admission. Finally, individual

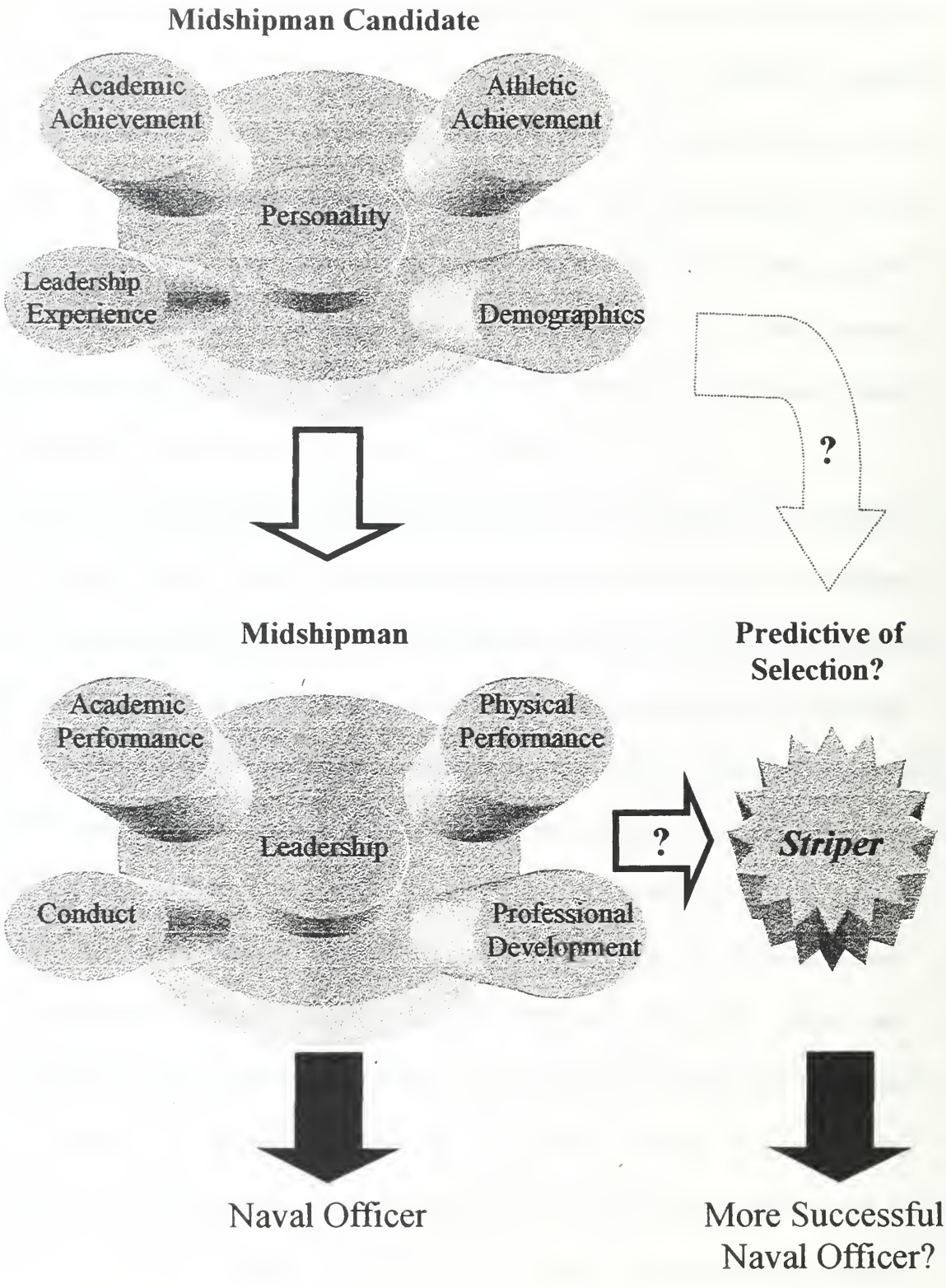

Figure 1.1. Model of Striper Selectivity

personality is an admissions factor in terms of interests, values, and motivation in identifying those best suited for a military career. Application questionnaires, teacher recommendations, and the Strong Campbell Interest Inventory all contribute to developing an image of a candidate's personality.

Once admitted, a midshipman's development is assessed along axes of academic performance, physical performance, conduct, professional development, and leadership. Academic performance includes core courses to the curriculum, academic majors courses, and professional courses such as navigation and leadership. All three contribute to a midshipman's academic quality point rating (AQPR). Physical education classes in boxing, gymnastics, and swimming, for example, as well as a semi-annual physical readiness test, assess physical performance. Although conduct grades are based upon adherence to the Academy regulations, conduct in general requires abidance to the Honor Concept, as well as demonstration of integrity. Professional courses are supplemented by practical training in some extracurricular activities and summer cruises on Navy ships. The military performance rating assigned to midshipmen by their Company Officers remains the primary leadership assessment measure. Each Company Officer is a Navy or Marine Corps officer (with a grade of O-3 or O-4) who acts as a supervisor and mentor to the 140 midshipmen in his or her company. The military performance rating that each bestows on the midshipmen is primarily a subjective measure based on observations of "good" leadership and military bearing.

It is important to distinguish the proposed model from the aggregate multiple used by the Academy to determine each midshipman's order of merit. The aggregate multiple

groups measures of performance somewhat differently. The purpose of this model is to illustrate the areas considered for admission, the general areas of midshipman development being assessed, and the relationship between all of these areas and striper selection.

As illustrated by the model, midshipmen are selected with a variety of measures in mind, and are expected to excel in a variety of areas once admitted. This thesis examines whether certain areas are statistically favored over others in choosing midshipmen to lead the Brigade, and whether favored attributes in the selection process are consistent with those favored by midshipmen and the Navy's promotion system.

B. PURPOSE

The Naval Academy takes great pride in choosing its stripers to lead the Brigade. The intent is to choose the best individuals the Academy has to offer. There is an additional investment placed in these individuals in terms of their own leadership development and experience. It is assumed that the desired return is one of positive role models for the Brigade and at least somewhat better performance in the fleet Navy. But has this return been maximized?

The purpose of this research is to answer the following questions regarding stripers:

- How have past Brigade leaders performed in the fleet, in terms of promotion, relative to other Naval Academy graduates who did not hold significant Brigade leadership positions?

- What were the midshipman candidate and midshipman predictors of selection for past Brigade leaders?

- How are Brigade leaders selected, and what are the expectations of their performance?

- Can the process of selection be improved to maximize the benefit for the Brigade and improve the career success of the Academy's premier student leaders?

Using information from several databases as well as survey data obtained from midshipmen and midshipmen stripers, this thesis attempts to paint a picture of who is likely to be selected as a striper and how these individuals are regarded by subordinate midshipmen and by superiors in the fleet.

C. SCOPE, LIMITATIONS, AND ASSUMPTIONS

The scope of this study is limited to suggesting the need for further research and studies of Brigade leaders and measures for leadership selection. It is not intended to offer a completely new and more appropriate method of selecting leaders. By examining the attributes of a group of past Brigade leaders, this study offers a general profile of these individuals that can raise the awareness level of those charged with selecting these leaders. The success level of past stripers, as well as recent views of stripers and subordinate midshipmen, may suggest the need for additional selection criteria.

This study focuses on the same cohort of Naval Academy graduates used in LT Reardon's (1997) thesis. Stripers from the USNA classes of 1980 through 1985 are studied to develop the statistical profile for striper selection. With logistic regression, an approach similar to Reardon's will be used to determine the likelihood of promotion among stripers to the rank of Commander (O-5) for individuals in the USNA classes of 1980 through 1982. Of Reardon's cohorts, these three classes are the only ones to have

been considered for promotion to O-5 as of the date of this study. Furthermore, only those who chose to remain in the Navy until the O-5 promotion board will be considered. In studying promotion rates among the stripers in the sample, it is important to note that their level of success will be measured against that of their USNA classmates and not against that of all Navy officers. Additionally, those midshipmen who chose Marine Corps commissions will not be included in the promotion analysis.

In a more qualitative assessment of stripers, survey information regarding the stripers in the class of 1997 is used to provide a snapshot of subordinate satisfaction with midshipmen stripers. The survey responses studied were part of a Quality of Life survey administered by the Naval Academy Institutional Research Center (IRC) in August of 1997 to the classes of 1998, 1999, and 2000. Usefulness of the survey data will be limited by two factors. First, the sample of stripers in question for the survey is small and is the result of only two iterations of the selection process. Secondly, as will be evident in a discussion of the striper selection process, selection has a largely subjective element that is heavily dependent upon the views of Naval Academy Company Officers. Since individual Company Officer turnover occurs approximately every three years, subordinate satisfaction or dissatisfaction with stripers may be difficult to generalize due to the transitory nature of the subordinates and of those doing much of the selecting.

A survey of stripers in the class of 1998 was also conducted to illuminate the experiences and views of the Academy's most recent stripers. This tool was used to assess how subjects of the selection process feel about its effectiveness and how they feel about their own development and experiences as stripers. Since it samples only one class

however, it is subject to the same limitations described above as well as the limitations associated with self-reported assessments of each striper's own development.

II. LITERATURE REVIEW

A. INTRODUCTION

In recent decades, methods regarding leadership and management selection and development have become increasingly grounded in empirical evidence. Many studies have been conducted on appropriate measures and means of identifying leaders and managers in a large variety of organizational settings. Though researchers have taken decidedly different approaches in tackling the issues involved, the growing consensus is that, despite the complex interaction of many variables, predicting leadership success is becoming increasingly feasible.

In his article "Research on Leadership Selection and Training: One View of the Future" Fred Fiedler (1996) recognizes the significant growth in understanding leadership over the last 40 years. Experts in the field have begun to focus less on leadership traits and abilities and more on the complex interaction between leaders, followers, and the organizational environment. Despite this, Fiedler (1996) argues that this growth in understanding is "frequently ignored in personnel selection and leadership training" (p.241). He further argues that "most leader selection and leadership training approaches have not been adequately validated" (Fiedler, 1996, p.241).

Fiedler (1996) makes a compelling argument for the importance of leadership in the survival or demise of groups and organizations. He mentions historical leaders such as George Washington and business leaders such as Lee Iacocca as examples of the importance of leadership for group success. He also cites a study by Thorlindsson (1987)

in which the captains of 200 Icelandic herring-fishing ships were studied. These nearly identically manned and equipped ships compete for the herring catch under identical conditions. Thorlindsson (1987) found that the captains of these ships "accounted for 35 to 49 percent in the variation of the catch over a three-year period"(Fiedler, 1996, p.241). In citing this study, Fiedler (1996) implies that leaders do make a difference.

In speaking of leader effectiveness, Fiedler (1996) asserts that leader abilities and attributes are insufficient measures of success. He claims that equally important is "how well the leader's personality, abilities, and behaviors match the situation in which the leader operates" (Fiedler, 1996, p.242). Though research on assessment centers has shown them to be reasonably accurate in identifying those who become successful managers, the results have been difficult to generalize due to non-standard methodologies and "wide variations in the sensitivity, skills, and competence of the assessors" (Fiedler, 1996, p.242).

Fiedler (1996) makes several crucial points with regards to abilities, skills, and motivation in the context of leadership. The first is that the "motivation and abilities attributed by leaders and followers to one another determine in part how the leader and subordinates deal with each other and how this affects leader and subordinate behavior" (Fiedler, 1996, p.243). Second, "Predictions of how a leader will perform in a particular job that are based on the individual's intelligence have been marginal at best, and experience and job knowledge have been shown to be completely unrelated to leadership performance" (Fiedler, 1996, p. 245). Being unrelated, such measures predict or add to performance as often as they impede or fail to predict performance (Fiedler, 1996).

Fiedler (1996) does not dismiss the importance of intelligence or experience, but rather suggests greater focus on helping leaders make more effective use of the cognitive abilities they have. Third, leader cognitive abilities cannot be a factor unless "(1) the leader tells the group what to do, and (2) the group members listen to the leader and do what they are told" (Fiedler, 1996, p.246). Clearly, such statements suggest the need for considerations besides abilities and intelligence in selecting leaders.

Fiedler (1996) discusses the significant role that interpersonal stress plays in the leadership equation. His own studies have found that when stress is high, leaders with high intelligence tend to perform poorly. However, leaders with higher experience tend to perform better under high stress conditions. Conversely, it has been found that leader intelligence contributes to performance under low stress conditions, while inexperienced leaders outperformed experienced leaders under low stress conditions. With regards to experience, Fiedler (1996) offers the reasoning that under stress, leaders tend to fall back on proven thinking and habitual behaviors. When stress is low or absent, experienced leaders tend to be bored, unchallenged, and impulsive, and therefore ineffective. Fiedler (1996) cites Borden's (1980) study of infantry company commanders and Link's (1992) study of army officer candidates as producing similar findings. Fiedler (1996) summarizes these counterintuitive findings by stating that "...under low stress, leaders use their intelligence but misuse their experience; under high stress, they use their experience but misuse their intelligence" (p.246).

Fiedler's (1996) research clearly suggests that identifying effective leaders involves more than assessing potential leaders' intelligence and experience. In fact, many studies in

the last decade have focused more on leader personality and subordinate assessments of leaders.

B. STUDIES IN LEADERSHIP ASSESSMENT AND SELECTION

1. Personality as a Predictor of Leader Effectiveness

In 1995, R.R. Vickers of the Naval Health Research Center conducted a study of previous research that used personality as a measure for leadership selection. Vickers used the Five-Factor Model (FFM) of personality as the foundation of his study and cited five separate studies of military personnel in which personality was linked to leadership performance. Though each study used different personality inventory instruments, Vickers was able to convert the findings to the more generally applicable and commonly referred to FFM. The FFM model specifies personality along the domains of neuroticism, extraversion, openness, agreeableness, and conscientiousness; each domain is described by an extensive list of representative adjectives such as anxious and fearful for neuroticism, and forgiving and trusting for agreeableness.

As a precursor to reporting his own findings, Vickers (1995) reviewed the methodology and findings of studies involving West Point cadets, U.S. Coast Guard officers, U.S. Naval Academy midshipmen, U.S. Army enlisted personnel, and U.S. Air Force officers chosen for early promotion. These studies were chosen from among 91 discovered in the PsychLit computerized database as having the greatest relevance in developing a military leadership profile (Vickers, 1995).

Four of the studies reviewed used some form of leadership rating as the criterion for success. The study at West Point used the Aptitude for Military Service Rating (ASR), which combines peer evaluations and ratings by cadet officers and tactical officers (similar to USNA Company Officers). The Coast Guard study employed an "officer effectiveness rating" that was assigned based on the judgement of two officers who participated in the study (Vickers, 1995, p.7). The Naval Academy study of senior midshipmen used performance measures including cumulative grade point average (GPA), cumulative military performance rating by Company Officers, supervisor ratings during an assignment to indoctrinate incoming freshmen (plebes), and ratings by subordinates during the indoctrination. The Army study, called Project A, used a variety of measures designed to assess technical proficiency, "soldering proficiency," "effort and leadership," personal discipline, and "military fitness and bearing" (Vickers, 1995, p.9).

The fifth study, focusing on Air Force officers, used the criterion of early promotion as a measure of leadership success. However, as Vickers (1995) asserts, "Ratings such as those considered in the prior studies play a part in the promotion decisions, so promotion criteria can be expected to show a profile similar to that for the other leadership studies" (p. 10).

A summary of the findings indicates that "Three of the five studies demonstrated that the leadership criterion was distinct from task proficiency (or academic proficiency)" (Vickers, 1995, p.10). When Vickers (1995) mapped the FFM model onto the findings of the studies, only the Air Force study covered all five domains of the FFM. Nevertheless, the studies using leadership ratings as criteria "consistently indicated that

conscientiousness was related to better leadership" (Vickers, 1995, p.10). Furthermore, "Three of those four studies showed that emotional stability was related to better leadership" (Vickers, 1995, p.10).

Vickers' (1995) analysis of the studies' findings includes a brief discussion of the leadership criteria commonly used. Suggesting that limitations of the criteria used in each study are evident, Vickers (1995) asks, "Should being promoted to a position of increased leadership responsibility be assumed to reflect past demonstrations of leadership" (p.11)? He also asks, "If the essence of leadership is obtaining the concerted support of subordinates in the pursuit of organizational goals, are supervisor ratings of leadership appropriate" (Vickers, 1995, p.11)? Such questions run counter to the historical views of leadership assessment, but will be suggested again by the findings of other studies.

Vickers (1995) extended his analysis from the macro level of the FFM dimensions to more specific personality attributes covered by the five domains. His intent was to determine whether "relationships between leadership and personality are variable within the broad FFM domains" (Vickers, 1995, p.11). The study of West Point cadets by Gough, Lazzari, Fioravanti, and Stracca (1978) and the Coast Guard study by Blake, Potter, and Slimak (1993) provided such opportunity for extended analysis. The Gough et al. (1978) study used Gough and Heilbrun's (1965) Adjective Check List (ACL), an inventory of 19 personality attributes that are a mixture of the attributes included in four of the five domains of the FFM. The Coast Guard study by Blake et al. (1993) used the California Psychological Inventory (CPI), which when mapped onto the FFM also produced four of the five domains (Vickers, 1995).

Vickers' (1995) "fine-grained" analysis of these two studies indicates that detail is paramount in predicting leadership along the FFM domains (p.14). Along the domain of neuroticism, Gough et al.'s (1978) study did not include any attributes related to neuroticism. However, the findings of Blake et al. (1993) did indicate that depression, self-consciousness, and stress vulnerability were key elements of neuroticism that detracted from leadership. The domain of extraversion was found in both studies to have positive and negative predictors of leadership. Specifically, being alert, strong, enthusiastic, and assertive was correlated positively with good leadership, while exhibitionism was found to be counterproductive. Facets of agreeableness that were predictors of good leadership ratings were being trustworthy, cooperative, tolerant, moderate, aggressive, demanding and appreciative; poorer leadership ratings were associated with being kind, altruistic, bossy, hard-hearted, hostile, suspicious, tactless, rude, and conceited. The conscientiousness domain predicted good leadership when leaders were capable, conscientious, deliberate, dependable, efficient, industrious, methodical, persevering, and responsible. Negative leadership ratings were associated with being frivolous, shiftless, unambitious, and reckless. Finally, openness to experience predicted good leadership when leaders were civilized and independent, while being dull, superstitious, humorous, wise, and having narrow interests uniformly related to lower leadership ratings (Vickers, 1995).

The central purpose of Vickers' (1995) study was to suggest a leadership profile based on these results and the results of analyzing personality as a predictor of advancement among Navy enlisted hospital corpsmen. Using the Comrey Personality

Scale (CPS), a "well-standardized personality inventory that covers all five domains of the FFM," Vickers (1995, p.15) attempted to correlate certain facets with higher ratings among corpsmen at the end of the each individual's first term of enlistment. Careful to select a sample of individuals who had the same general opportunities for advancement, Vickers (1995) found that "Rapid advancement was associated with a number of personality attributes" (p.16). The specific correlations between certain facets of the FFM domains and advancement were consistent with those found in the other studies.

Though he suggests an outline for a leadership profile based on his findings, he cautions against oversimplifying leadership behaviors that are based on the profile. As he states,

> *Effective leadership appears to involve a much more complex pattern of behaviors, sometimes involving a careful balancing of attributes such as those related to kindness and hard-heartedness. Failure to appreciate this complexity may be one limiting factor in attempts to understand effective leaders (Vickers, 1995, p.19).*

Based on research concerning the stability of personality, Vickers (1995) contends that personality is reasonably stable as long as "normal populations are studied," "scales with high measurement precision are used," "the interval between measurements is short," and "the population studied is older" (p.21-22). Personality change among late adolescents and young adults is indicated by several studies to be largely associated with environmental factors, such as job experiences. If such changes are experientially, not genetically, determined, "...leadership potential could be enhanced by structuring Navy experiences to provide optimal growth opportunities for promising young men and women" (Vickers, 1995, p.22).

With regards to mental ability and personality, Vickers makes the assertion that the two concepts are not redundant. He found that in a large sample of Navy recruits, the four major personality domains predictive of leadership "correlate less than r =.20 with Armed Forces Vocational Aptitude Battery (ASVAB) scales (Vickers, 1992)" (Vickers, 1995, p.24). In his study of Navy hospital corpsmen, Vickers (1995) found that Armed Forces Qualification Test (AFQT) scores correlated less than r =.18 for the attributes predictive of leadership potential. As he states, "...selection based on mental ability may ensure better technical performance, but it does not guarantee better leadership" (Vickers, 1995, p.24). Rather, he suggests that personality measures might make the difference in selecting an individual with significantly higher leadership potential when differences in mental ability are small (Vickers, 1995).

Vickers (1995) defends his case for using personality as a leadership selection tool by considering the alternative of using biodata to assess leadership potential. Biodata relevant to leadership potential include leadership experiences in school or community activities in the past. He suggests that the biodata method could be defended in two ways. The first defense is that "...people in the past have had adequate opportunities to make subjective judgements of a person's abilities and select those with high leadership potential" (Vickers, 1995, p.26). Second, he cites the "general dictum that 'Past behavior is the best predictor of future behavior'" (Vickers, 1995, p.26). The problem with both of these justifications is the assumption that "past opportunities have been equally distributed and that peers and supervisors are good at identifying true leadership potential" (Vickers, 1995, p.26). Due to the inaccuracies of informal assessment methods based on these

assumptions, Vickers (1995) argues that additional measures and methods of identifying leadership potential are needed.

In a study of midshipmen not yet published, Lieutenant Commander R. Lall (1998), a clinical psychologist assigned to the Naval Academy, studied personality characteristics among these future military leaders. Personality data were collected using the Hogan Personality Inventory (HPI) and a demographic questionnaire on 530 third-year midshipmen. Class ranking at Naval Academy was obtained as a measure of success. The HPI was chosen as it is a "well standardized personality inventory typically employed for the purpose of personnel selection in American business environments" (Lall, 1998, p.6). In fact, the HPI has been normed on over 30,000 adults in a wide variety of occupations and has a built in validity scale to assess interpretability of results (Lall, 1998).

Lall (1998) notes that the hypothesized link between leadership and personality has grown in part from examinations of leadership failure in organizations. As he states, "Managerial derailment is now well understood as being caused by flawed interpersonal skills that prevent effective team building" (Lall, 1998, p.3). Citing suggestions by Hogan, Curphy, and Roberts (1996), he adds that "subordinates' ratings of the degree to which they trust their managers may turn out to be the best single predictor of work group effectiveness, and therefore leadership" (Lall, 1998, p.4). Despite the perception that a leader is dedicated and extremely competent, he or she may also be seen as over-bearing, egotistical, overconfident, selfish, and untrustworthy (Lall, 1998).

Lall (1998) notes the equivocal findings of numerous studies searching for correlates between personality and leadership effectiveness. In particular, he cites four

previous studies of midshipmen using the Myers Briggs Type Indicator (MBTI) by Atwater and Yammarino (1989), Roush and Atwater (1992), and Roush (1989, 1997). All four studies found that, contrary to previous hypotheses correlating Thinking and Judging orientations to military leadership, Sensing and Feeling types were the most highly rated by freshman followers. Citing Roush's (1997) most recent study, he notes that approximately 25 percent of midshipmen were found to be Feeling types. These studies by Atwater and Yammarino, Roush, and Roush and Atwater (as cited in Lall, 1998) also found that those who drop out of the Academy during the first year (8 to 10 percent) were much more likely to be Sensing and Feeling types. As Lall (1998) suggests, "One interpretation of these findings is that the midshipmen with personality types most likely to be rated positively by subordinates may find the Academy environment more aversive initially and may not be positively evaluated by superiors" (p.5).

Of the participants in Lall's (1998) study, ninety-one percent (n = 530) produced valid HPI profiles. The sample was fairly evenly divided into thirds according to self-reports of class rank. The results indicated that midshipmen possess certain personality characteristics that distinguish them from the normal population. Of particular interest were the HPI subscales that correlated with class rank. Among other things, Lall (1998) obtained significant results ($p < .01$) indicating that leadership, competitiveness, math ability, good memory and self-confidence correlated positively with class rank, while empathy and the propensity to experience guilt were negatively correlated with class rank.

With respect to leadership, Lall's (1998) results are not unequivocal. As expected, midshipmen with higher class rankings achieved higher HPI leadership scores. Though

less than 18 percent of class rank is determined by military performance (of which a large component is leadership performance), Lall (1998) notes that "Midshipmen in the top one third of each class are most likely to be selected as leaders within the Academy" (p.9). However, Lall (1998) notes the high negative correlation between capacity for empathy and class rank with the comment "In the changing and increasingly complex Navy, empathy as a personality trait may be an important leadership asset" (p.9).

An additional consideration in interpreting Lall's (1998) results is the construction of the HPI leadership subscale itself. The inventory includes six questions used to assess "capacity for leadership" such as "In a group, I like to take charge of things" (Hogan, 1997, p.5). Such self-reported assessments of a desire to be "in charge" may not be more relevant to leadership effectiveness than other personality traits. In fact, despite his results, Lall (1998) admits, "it is unclear if these midshipmen with the highest class rankings will eventually become the most effective military leaders" (p.10).

Lall's (1998) study was aimed primarily at finding correlates between personality traits and successful performance at the Naval Academy. He asserts that "well-developed measures of normal personality are: (a) stable over reasonably long periods of time, and (b) predictive of important occupational outcomes" (Lall, 1998, p.5). Assessing his findings, Lall (1998) suggests that they are "most helpful in shedding light on the personality factors most predictive of broad 'success,' particularly academic success, at the Naval Academy and less instructive concerning factors most predictive of current or future leadership success" (p.10). However, as he notes earlier in his report, "Historically, organizations have selected supervisors and managers on the bases of likability and job

proficiency, with comparatively little attention to focal personality features which may correlate with eventual leadership success" (Lall, 1998, p.5).

2. Subordinate and Superior Perceptions of Leadership

In a study of midshipmen at the U.S. Naval Academy, Atwater and Yammarino (1993) examined personal attributes as predictors of superiors' and subordinates' perceptions of leadership. The authors cite Segal (1985), who suggested that "a large part of an individual's leadership potential refers to innate personality traits which are brought out by the group process and which are not uniformly distributed in the population" (Atwater & Yammarino, 1993, p.645). They also cite Bass (1985) who asserted that personality was a large determinant of whether a leader would or would not be transformational. Atwater and Yammarino (1993) pursued their study under the notion that to predict leadership effectiveness, "We not only need to know what the leader does but also 'who s/he is'" (p.646).

Using multiple regression analyses instead of the more commonly used correlational analyses used in personality/leadership research, Atwater and Yammarino (1993) set out to measure the extent to which leaders were perceived as transformational and transactional by subordinates and superiors. Transactional leaders, as stated by Bass (1985), seek to reward subordinates' efforts as performance warrants, exchange rewards and promises of reward for subordinates' efforts, and respond to the immediate self-interests of subordinates if those interests can be met by accomplishing the necessary tasks. Furthermore, he asserts that such leaders do not question the goals of their

organization and assume that subordinates maintain a steady motivation to support the leader and his or her goals.

In contrast, Bass (1985) asserts that transformational leaders recognize subordinates' fundamental needs and desire for rewards, but tend to extend themselves, "seeking to arouse and satisfy higher needs, to engage the full person of the follower" (p. 14). Higher needs may be described as individual growth and fulfillment, needs that are far beyond the more basic needs for survival and existence. Transformational leaders are those who can raise "consciousness about higher considerations through articulation and role modeling" (Bass, 1985, p.15). Furthermore, according to Bass (1985), transformational leaders are more proactive and innovative in addressing the important issues of an organization and its people. The benefits of transformational leadership lie in its ability to influence subordinates "to transcend their self-interest for the good of the group, organization, or country" (Bass, 1985, p.15).

Previous research has shown that leadership "ratings from different sources are not highly related" (Atwater & Yammarino, 1993, p.648). Since it has been hypothesized that transformational and transactional leaders have different personality characteristics, identifying each type of leader from subordinate and superior ratings might demonstrate whether superiors or subordinates had more accurate perceptions of either leadership style (Atwater & Yammarino, 1993). "If superiors' ratings of leaders are influenced by different characteristics of the leader (e.g., the individual is loyal and conscientious) than are subordinates' evaluations (e.g., the leader is intelligent and sensitive), superior and subordinate evaluations of the leader will differ" (Atwater & Yammarino, 1993, p.648).

Atwater and Yammarino (1993) used four types of predictors to demonstrate the variance between superior and subordinate ratings of midshipmen leaders at the United States Naval Academy. Based on the previous research of Bass (1985, 1990), traits, coping style, decision style, and athletic experience were assessed to predict who would be perceived as transformational and transactional leaders. Among traits, some research suggests that intelligence would be predictive of leadership, although Atwater and Yammarino (1993) proposed that it might be less important to supervisors. Boldness or assertiveness has been hypothesized to be a predictor of transformational leadership, while warmth and conformity (or conscientiousness) are sometimes believed to be predictors of transactional leadership (Atwater & Yammarino, 1993). With regard to coping style, high measures of emotional coping, or emotional stability, and behavioral coping, or the ability to get things done quickly and smoothly, have each been correlated to leadership. It is believed that behavioral coping is of particular interest to superiors. Decision style, as defined by two of the four styles of the Myers-Briggs Type Indicator (MBTI), is particularly relevant to leadership (Atwater & Yammarino, 1993). Sensing vs. Intuiting and Thinking vs. Feeling types are thought to define different leadership styles. Transformational leadership theory suggests that those relying on intuition and their own vision would be more transformational and that feeling, or more relationship-oriented leaders, would have more satisfied subordinates (Atwater & Yammarino, 1993). Finally, although not officially studied as a predictor of leadership since the 1930s, athletic experience has had a long history of correlation with the ability to motivate and lead

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others. Atwater and Yammarino (1993) judged all of these predictors to be particularly relevant to a military academy setting.

The leaders in this study, 99 male and eight female midshipmen, were assessed by the Sixteen Personality Factors Test (16PF) for traits, the MBTI for decision style, the Constructive Thinking Inventory (CTI) for coping style, and the self-reported number of varsity sports played, averaged across semesters (Atwater & Yammarino, 1993). Each midshipman's leadership was assessed by ratings from one superior officer and multiple subordinates.

The results of their study confirmed the notion that subordinates and superiors differ in their views of leader behavior. As Atwater and Yammarino (1993) state,

> *the predictors which correlated significantly with subordinate ratings of transformational and transactional leadership (i.e., intelligence, thinking/feeling, emotional coping, and athletics) generally differed from those significantly correlated with superior ratings of transformational and transactional leadership (i.e., conformity, thinking/feeling, and behavioral coping)* (p.657).

However, based again upon correlational results, patterns of relationships within each group of raters were similar (Atwater & Yammarino, 1993). Results confirmed that "intelligence and emotional coping predicted subordinate ratings of transactional and transformational leadership, while conformity and behavioral coping were related to superior ratings of transactional and transformational leadership" (Atwater & Yammarino, 1993, p.661). Emotional coping ability, however, did not predict subordinate ratings in the direction anticipated. The security and well being associated with high emotional

coping may translate into a certain level of insensitivity and appears to be negatively correlated to subordinate ratings of leadership (Atwater & Yammarino, 1993).

Based on the multiple regression analyses that were performed on the different raters' assessments of transformational and transactional leadership, it was found that "personal attributes accounted for a significant portion of variance in subordinates' ratings" of both leadership styles (Atwater & Yammarino, 1993, p.660). Conversely, the "variance accounted for in superior ratings of transactional and transformational leadership by the attributes...was not significant" (Atwater & Yammarino, 1993, p.660). Atwater and Yammarino (1993) offer that this could have occurred because the superior ratings were less reliable (since each midshipman was rated by only one superior), or because the subordinate ratings were more valid. In discussions with superior raters, some "admitted that they had only rarely seen the squad leaders interacting with subordinates" (Atwater & Yammarino, 1993, p. 661).

The correlational results also indicated that "feeling" types were rated higher than "thinking" types on transformational and transactional leadership by both superiors and subordinates. Unfortunately, it has been found in a previous study by Roush and Atwater (1992) that such types are more likely to leave the military (Atwater & Yammarino, 1993).

Finally, based on both correlational and regression results, Atwater and Yammarino (1993) found that athletic experience was a strong contributor to subordinate ratings of transformational and transactional leadership. Interestingly, they note that these subordinates were new to the Academy and were unlikely to be aware of their leaders'

athletic experience, thereby contributing to the notion that athletic success and leadership skills are related. When questioned later, leaders with such experience claimed it helped them foster teamwork and motivate others (Atwater & Yammarino, 1993).

The results of the Atwater and Yammarino (1993) are important to leadership selection for several reasons. First, it appears that "coping styles, MBTI type, and athletic experiences can be useful predictors of leadership, especially if used in combination and if the source of the leadership rating is considered" (Atwater & Yammarino, 1993, p.665). Second, if

> *superiors' perceptions of leadership differ markedly from the perceptions of those being led, and if managers hold unconscious theories about leadership that include components such as conformity, self-discipline, and an optimistic 'get the job done' orientation (or other characteristics of 'good' subordinates), those selected for promotion to leadership positions may not be the individuals with the greatest leadership potential* (Atwater & Yammarino, 1993, p.665).

For this reason, the U.S. Army has begun to see the importance of incorporating subordinates' views into performance evaluations of leaders. Finally, as Atwater and Yammarino more explicitly state,

> *If superiors are actually confusing good leadership with good followership, and superiors assess their subordinates leadership skills (which very often is the case in performance evaluation systems), ultimately those promoted in organizations may be the best followers, not the best leaders* (1993, p.665-666).

Lord, De Vader, and Alliger (1986) explored the relationship between personality and perceptions of leadership. They claimed that earlier studies by Mann (1959) and Stogdill (1948) on the correlates between traits and leadership had conclusions that pertained more to perceptions of leadership, rather that leader effectiveness. Furthermore,

they claim that, as a result of the findings of these studies, which declared that there were no traits that differentiated leaders from non-leaders, trait theory was abandoned prematurely.

Lord et al. (1986) base their notion of leadership perceptions on the theory of perceiver prototypes. They postulate that "If prototypes are widely shared in our culture and if they include many trait terms, traits should be important perceptual constructs, and our perceptions of others should be based on their match with the traits in our prototypes" (Lord et al., 1986, p.403). As an example, they cite the work of Hollander and Julian (1969), who found that "leaders emerged in group situations by fitting the shared conceptions of followers, emphasizing the role of perceiver constructs in leadership processes" (Lord et al., 1986, p.403). In other words, followers permitted themselves to be led by others who matched their conception of a good leader (Lord et al., 1986).

Though not covered specifically by this study, a similar dynamic might occur during the process of leader selection. If superiors are similarly affected by this notion of prototypes, those who "fit the bill" as a leader in the eyes of a superior would more likely be chosen for promotion or leadership positions.

Lord et al. (1986) reviewed Mann's (1959) study and conducted a meta-analysis of his and other studies that revealed "significant and consistent trends in the relation of personality to leadership emergence" (p.404). In short, they found a strong correlation between leadership perceptions and intelligence, masculinity-femininity, dominance, outgoing personalities, and verbal skills.

Lord et al. (1986) are quick to point out that their findings relate to perceptions of leadership and do not directly implicate certain traits as predictors of leader performance. However, they do note the importance of leadership perceptions as "a major component of the social fabric of many organizations" and the benefits of leadership perceptions in exerting influence and fostering commitment among followers (Lord et al., 1986, p.408).

C. A REVIEW OF LEADERSHIP ASSESSMENT METHODS

In Bass and Stogdill's (1990) Handbook of Leadership, Bernard Bass takes a comprehensive look at both judgmental and mechanical approaches to assessing and selecting leaders and managers in a variety of settings. Among judgmental approaches, Bass (1990) describes two types of simulations that have proven useful for management and leadership assessment. In-basket Tests are designed to test a subject's ability to prioritize and handle a large variety of managerial tasks (i.e., telephone messages, memos, complaints, etc.) in a set period of time, such as one hour. It has been argued that with such tests, predictability of future performance increases with more representative and appropriate tasks relative to the position the examinee is being considered for. A variety of studies have shown that such tests, as compared to written tests of ability and interests, significantly improve the forecasting of manager success (Bass, 1990).

Small group exercises, such as the initially leaderless discussion group (LGD), also provide a strong means of forecasting leader success (Bass, 1990). Observers assess the interpersonal and leadership qualities of each individual in the group and take note of who emerges as the leader. Several studies have also corroborated these exercises as useful

means of predicting success. In one study by Bass, observed judgements of LGDs correlated .44, .53, and .38 with ratings of Reserve Officer Training Corps (ROTC) cadets when they became cadet officers 6 months to a year after the exercise (as cited in Bass, 1990). The usefulness of LGDs led to their incorporation into most assessment centers (Bass, 1990).

Bass (1990) also explores the judgements of superiors, peers, and subordinates as predictors of leader success. Citing a study by Yammarino and Bass (1989), he notes the correlation of .25 between cumulative military performance grades awarded by superiors at the Naval Academy and subsequent fitness reports of 186 Navy officers still serving as much as ten years after commissioning (Bass, 1990). As an aside, he also notes the finding that Naval Academy academic grades failed as predictors of fleet performance.

Bass (1990) suggests that superior assessments of leadership become more consistent with increased observation of leader behavior, increased numbers of positions in which the leader is observed, and observation by several superiors. Furthermore, he asserts that "the predictive validity of superiors' judgements will suffer to the extent that they overweight the technical proficiency and manipulative styles of the candidates" (Bass, 1990, p.860).

According to numerous studies, peer ratings may be the best single predictor of leader success. A correlation of .51 has been documented by Baier (1947) between peer ratings of West Point cadets and their subsequent success as infantry officers 18 months later (as cited in Bass, 1990). Baier (1947) also found that peer ratings in Officer Candidate School (OCS) correlated .42 with officers' later combat performance (as cited

in Bass, 1990). Studies of U.S. Marines and U.S. Air Force personnel have reported similar results, and a study of U. S. Naval Academy midshipmen by Ricciuti in 1955 found "fellow midshipmen's ratings of aptitude for service more predictive of the subsequent performance of naval officers than ratings made...by their Navy officers" (Bass, 1990, p. 861). Finally, similar success among senior officers was reported by Downey, Medland, and Yates (1976) in the case of 1,656 colonels who used peer ratings to forecast who among them would be promoted to general (as cited in Bass, 1990). The correlation was .47 (Bass, 1990).

Bass (1990) also cites studies indicating that, to be predictive, peer evaluations or nominations must be positive. In other words, a peer evaluation of "most effective" will be predictive of success, whereas a peer nomination of "least effective" will not be as negative a predictor as expected (Bass, 1990).

Judgements by subordinates has become an increasingly popular method of feedback for developing managers (Bass, 1990). Though potentially useful for predicting success, Bass (1990) asserts that "the accuracy of the predictions derived from such information would suffer to the degree that the subordinates overweight sentimentality, the likability of the candidate, and the extent to which the future position's requirements differ greatly from the current one" (pp.861-862). Despite this concern, it has been shown among junior naval officers and Federal Express managers that those rated higher in leadership potential by superiors were also rated by subordinates as higher in transformational leadership and lower in laissez-faire leadership (Bass, 1990).

Bass (1990) briefly reviews the manner in which personnel procedures, such as interviews, tests, boards, and recommendations, have contributed to forecasting leader and occupational success. As an example of the interview process, he references the more than 20,000 interviews conducted by Admiral Hyman Rickover in choosing personnel for the Navy's nuclear power program. However, Bass (1990) notes the apparent lack of standardization employed by Rickover and cites anecdotal evidence introduced by Polmar and Allen (1981) that suggests that "what he did made little contribution to his accuracy in predicting the subsequent performance of officers in the nuclear fleet" (p.862).

Early studies of the predictive validity of interviews showed little support for the method (Bass, 1990). Close to 80 studies concluded that intelligence was the primary attribute to be predicted from an interview. However, with improvements to the interview process and the integrated use of other personnel procedures came supporting evidence for the use of judgements derived in this manner. In particular, it has been found that structured interviews have twice the predictive validity of unstructured interviews (Bass, 1990). Furthermore, Bass (1990) asserts that "Careful attention to the job requirements of the position for which candidates are being considered and the use of multiple trained interviewers appear to make a difference in the validity of the interview" (p.863).

Judgements from recommendations and boards have also found their places in personnel and leadership selection. Bass (1990) asserts that as of 1990, recommendations, though widely used in a variety of selection and promotion systems, had yet to be studied thoroughly as predictors of leader or manager success. One study by McLaughlin (1971) does highlight their possible usefulness, though (as cited in Bass, 1990). It involved the

prediction of first-year success of cadets at West Point from recommendations of high school teachers and coaches. For these cadets, Bass (1990) explains, "Ratings of the charisma (personal magnetism, bearing, and appearance) and situational behavior (moral and ethical values, cooperation and teamwork, commonsense, and judgement) were the best predictors of the leadership and followership performance during their first year" (p.864). Interestingly, the most predictive recommendations came from athletic coaches and mathematics teachers (Bass, 1990). With regard to selection boards, Bass (1990) maintains that the process of decision-making effecting the outcome is just beginning to be truly understood. However, such boards have become the basis for the development of assessment centers used in leadership and management selection (Bass, 1990).

Mechanical approaches to assessing leadership have primarily included special keys for instruments such as the Strong-Campbell Vocational Interest Blank, scored applications and biodata questionnaires, and data from small-group exercises (Bass, 1990). The special key approach has been successful in a number of situations, using the Strong-Campbell inventory as well as the California Psychological Inventory (CPI), to predict promotion and management performance. In the case of the CPI, keyed elements used to distinguish managers from non-managers are many of the same elements discussed in leadership literature as those needed for strong leadership (Bass, 1990).

Scored applications and biodata information have also been useful in predicting leadership and occupational success in a number of situations (Bass, 1990). He cites a study of performance at the Naval Academy by Russell, Mattson, Devlin, and Atwater (1986) in which researchers developed a biodata questionnaire from retrospective life-

history essays, primarily of past accomplishments, by plebe midshipmen. The resultant questionnaire was administered to 917 new midshipmen to test its validity. The scales developed by Russell et al. (1986), as Bass (1990) explains, "predicted...subsequent military performance, academic performance, and peer ratings of leadership" (p.865).

Management studies have been the primary proving ground of small-group exercises. Bass (1990) shares the results of a large-scale study of managers (n = 3082) by Bass, Burger, Doktor, and Barrett (1979) who were above or below the median rate of advancement. The results of Exercise Life Goals showed that more rapidly advancing managers placed more importance on leadership, expertise, prestige, and duty, while more slowly advancing managers valued self-realization, affection, security, and pleasure (Bass, 1990). Results in other examples distinguished managers according to generosity, honesty, task orientation, intelligence, objectivity, and accuracy in interpersonal communications (Bass, 1990).

Assessment centers, utilizing various combinations of all the previously discussed assessment methods, were being used as early as 1923 (Bass, 1990). The notion of the assessment center can be traced to Europe, where potential leaders were often selected based on observations, personality tests, and interviews. Employing lessons learned in World War I, boards of psychologists and officers selected candidates for leadership positions in the German army through a variety of methods and observations. Throughout the years, similar initiatives developed in Great Britain and the United States and in many corporations. By the end of the 1970s, several thousand assessment centers and programs were in use (Bass, 1990).

The aggregate judgments of trained assessors provide a unique means of identifying underlying factors of candidates' success such as "overall activity and general effectiveness, organizing and planning, interpersonal competence, cognitive competence, motivation to work, personal control of feelings, and resistance to stress" (Bass, 1990, p. 837). The test-retest reliability of such a method suffers from a lack of data, but in one case, that of A T & T's assessment center, reliability of results on candidates tested one month apart was approximately .72. Retest reliability did not differ greatly according to race or sex (Bass, 1990).

The predictive validity of assessment centers has been difficult to determine. Bass (1990) cites one study by Hunter and Hunter (1984) that produced correlations of .63 for predicting managerial potential and .43 for job performance, but it was later determined that these correlations were somewhat inflated. Bray, Campbell, and Grant's (1974) study of A T & T's assessment center revealed correlations of .44 between assessments and the number of individuals who received at least two promotions within 8 years of assessment (as cited in Bass, 1990). The same study revealed that assessment results continued to be predictive of success as much as 20 years after assessment (Bass, 1990). Bass (1990) cites another study, though somewhat limited in scope, by Cunningham and Olshfski (1985) that determined that assessment centers "were better detectors of the variables of socioemotional leadership skills than of the variables of task-leadership skills, but the two tended to be correlated" (p.875).

In summary, a large variety of assessment methods is available for leadership selection. Bass's (1990) research of these methods suggests that a combined approach,

carefully assembled to meet the needs and objectives of the organization, may provide the best results, but the likely expense of an elaborate assessment center may not be worth the cost.

D. SUCCESS FACTORS OF U. S. NAVAL ACADEMY GRADUATES

LT Matthew Reardon (1997) conducted an extensive study of U. S. Naval Academy graduates, including an analysis of the significant contributors to graduation from the Academy and factors determining promotion to Lieutenant Commander. With the exception of the Navy pilots, he found that holding a significant Brigade leadership position was not a significant predictor of promotion success. However, USNA military performance grades were found to be a significant predictor of promotion. Since military performance is known to be a significant factor in the selection of Brigade leaders, Reardon (1997) suggested that a high correlation between military performance and holding a striper position may have biased the significance of striper positions as a predictor of fleet success. However, it should be noted that his final model for pilots in the sample included both variables, and military performance carried a significance of .01 while striper positions were significant at the .05 level. Both variables were practically significant and were the two strongest predictors of career potential for pilots.

From Reardon's (1997) study and that of others, it seems clear that academic performance does not predict fleet performance, primarily in terms of promotion success, among USNA graduates. However, Reardon (1997) does note the predictive validity, from his and other studies, of the USNA military performance measure in the primary

Navy warfare communities. He suggests that such a measure is readily adaptable to fleet measures of performance. As he states, "Military performance embodies a number of factors—leadership potential, military bearing, teamwork, discipline, dedication, initiative, professional knowledge, and training of subordinates—all of which are readily adaptable to the fleet environment, regardless of warfare community" (Reardon, 1997, p.158). What is not clear from Reardon's (1997) analysis is how these individual measures are assessed consistently to arrive at the military performance grade. Furthermore, in the assessment of military performance by Company Officers, are these measures being considered independent of academic performance?

The results concerning the predictive validity of Brigade leadership positions for officers in the other warfare communities are somewhat puzzling. Among those in the fleet, certain personality attributes may be associated with officers according to their respective communities. In Reardon's (1997) study, might there be certain distinct qualities among the pilots who were once Brigade leaders that differentiate them from their counterparts in the other communities?

One possible explanation is that the striper selection process identifies those who possess the strongest abilities to succeed at the Naval Academy, but not necessarily those with the leader qualities to better succeed in the fleet. Though the Naval Academy places great emphasis on technical ability and academic performance, both midshipmen at USNA and officers in the fleet are judged by dedication, teamwork, military bearing, etc., as described in the discussion of military performance. Unlike the Naval Academy, however,

it would be difficult for fleet superiors to be influenced by academic record in the writing of a fitness report.

In the case of would-be pilots, success at USNA is paramount if they are to earn one of a very limited number of pilot billets (until recently, warfare specialty selection was done by order of merit). Overall success at the Naval Academy might help them achieve striper status while certain leader attributes, judged inconsistently by the military performance system and striper selection process, would enable them to succeed in the fleet. If so, these would likely be the same qualities viewed by superiors in the fleet as worthy of promotion. These qualities might coincide with their occupational choice, a hypothesis consistent with research linking personality to occupational choice. Such research has produced instruments such as the Strong-Campbell Vocational Interest Inventory and Occupational Personality Questionnaire (OPC) (Bass, 1990). It may just be that preferred qualities for leadership were more dominant among the stripers in Reardon's sub-sample of pilots.

An alternative hypothesis might consider differences between the warfare communities in how officers are rated, or what qualities of leadership are desired. Assuming the striper selection process correctly identified the best potential leaders from each class, their success would still depend on what each warfare community, and even each command, valued as leadership qualities. Even though each warfare community does not administer the promotion system individually, each officer's fitness reports are written and signed by Commanding Officers in his or her community. Though officers receive fitness reports for shore duty positions that may be far removed from their warfare

community, it is primarily the operational fitness reports associated with the warfare specialty that determine promotions.

However, it may be, as Reardon (1997) suggests, that striper positions do not become predictive of success across communities until later career stages. Success in later career stages and in flag officer selection, as he also suggests, may not be as highly dependent on successful military performance at USNA (Reardon, 1997).

E. SUMMARY

As evident from the preceding pages, the literature on leadership assessment and selection does not provide clear prescriptions for determining leadership success. How that success should be measured is likewise an issue of concern. As suggested by the results of many studies, leadership effectiveness can be judged by the criteria of subordinates, peers, and superiors. How these inputs are balanced should be a function of what organizations value in their leadership, and how those valued qualities contribute to their final product. This study examines the characteristics of leaders the Naval Academy values as *its* best products, and begins to explore whether the Naval Academy leadership selection process can better represent its highly valued leadership legacy.

III. DATA DESCRIPTION AND ANALYSIS

A. SOURCES

The data for this thesis encompass an extensive range of demographics, scores and qualifications for USNA graduates from the classes of 1980 through 1985. Included here are high school and admissions data for these Naval Academy graduates, as well as Naval Academy performance measures and accomplishments. High school information concerning graduates includes accomplishments and scores from grades 10 through 12. Post-commissioning information includes individual promotion results and current rank information, as well as community designator or occupational specialty code used to differentiate pilots from submarine officers, etc. Such codes were important to identify those who compete directly with each other for promotion. The data also include estimated loss dates for those who left the service before their next promotion board.

The data were obtained from a variety of sources. The primary sources were the Navy Personnel Research and Development Center (NPRDC) in San Diego, CA and the U. S. Naval Academy's Institutional Research Center (IRC). NPRDC holds an extensive longitudinal database on Naval Academy graduates. The Academy's IRC provided data concerning certain Naval Academy specific demographics, such as lists of Trident scholars in the sample classes. Both NPRDC and the Academy's IRC provided rank, promotion and designator data from the Navy's Officer Master File. Certain variables were also obtained from the database used in Reardon's (1997) thesis. These were obtained from Professor William Bowman at the Naval Academy. Finally, USNA's command history

files held in the Nimitz library archives provided identities of those in the sample who were once midshipmen staff commanders, significant staff personnel (those with the rank of Midshipman Lieutenant Commander or above), or Company Commanders. The various data were compiled into one data base by merging files keyed to midshipmen names and midshipmen identification numbers.

B. USNA ADMISSIONS VARIABLES

1. Demographics

Admissions variables capture basic demographic data such as minority status, sex, and age upon induction as a midshipman. Though information was available on individual ethnicity, the majority of the analysis considered only whether an individual was part of a minority group. Representation in most ethnic groups was deemed too small to be useful for analysis on the level of individual ethnic groups.

Demographics also include binary variables that indicate whether a midshipman candidate's parents had significant military experience (MILFAM), as well as whether an individual obtained the necessary nomination for appointment to the Naval Academy by virtue of a particular status. Each midshipman candidate is required to receive a nomination from a U.S. representative, U.S. senator, the Vice President, or the President in order to be considered for an appointment. Presidential nominations are awarded to qualified children of career military personnel; therefore, such nominations are captured by the military family variable. However, Vice Presidential nominations include two special groups of personnel: regular or reserve enlisted members of the Navy or Marine Corps

and those from Navy Reserve Officer Training Corps (NROTC), Navy/Marine Corps Junior Officer Training Corps (NJROTC/MCJROTC), and honor naval or military schools (U. S. Naval Academy, 1998). These Vice President nominations are represented by the variables REGNOM, RESNOM, and SPNOM.

Additionally, the demographic data include information about various preparatory schools and programs designed to help individuals get appointments to the Academy. The variable FOUND represents those who were not granted appointments on their first try for admission but were granted a special scholarship for post-high school preparatory studies to improve their qualifications (Wahrenbrock & Neumann, 1989). The U. S. Naval Academy Foundation, Inc., a non-profit organization, awards a limited number of these scholarships. The USNA Admissions Board automatically recommends individuals to the Foundation for scholarship consideration; however, selection for a scholarship does not guarantee subsequent admission to the Academy (Wahrenbrock & Neumann, 1989).

The Broadened Opportunity for Officer Selection and Training (BOOST) program is another option for candidates whose academic record may not qualify them for immediate admission to the Academy. The program's school in San Diego offers a concentrated course of instruction in mathematics, science, and English to those seeking a NROTC scholarship or appointment to the Academy (Wahrenbrock & Neumann, 1989). Applicants must be extremely committed to pursuing a career as a Navy or Marine Corps officer.

Finally, the Naval Academy Preparatory School (NAPS) located in Newport, Rhode Island provides a 10-month college preparatory course to active duty and reserve

Navy and Marine Corps enlisted personnel who apply but fail to receive an appointment to the Academy (Wahrenbrock & Neumann, 1989). These individuals are automatically considered for NAPS. The admissions board also selects a number of highly motivated and promising civilian candidates who were not offered an appointment. Those attending NAPS enlist in the Naval Reserve solely for that purpose. Successful graduates of NAPS are automatically offered a Naval Academy appointment, provided they receive favorable recommendations, did not fail a course, and maintained a 2.0 academic average (Wahrenbrock & Neumann, 1989).

Table 3.1 summarizes the admissions demographic variables.

Table 3.1 Admissions Demographic Variables

VARIABLE	DESCRIPTION of VARIABLE CODE
SEX	1 = Female, 0 = Male
MINORITY	1 = Minority, 0 = Caucasian
IDAYAGE	Age in Years on Induction Day (First Day as a Midshipman)
MILFAM	1 = Child of a Career Military Parent, 0 = Other
REGNOM	1 = Regular Enlisted Navy/Marine Corps Nomination, 0 = Other
RESNOM	1 = Reserve Enlisted Navy/Marine Corps Nomination, 0 = Other
SPNOM	1 = Special Nomination (Honor School/J/NROTC), 0 = Other
FOUND	1 = Naval Academy Foundation Prep School Graduate, 0 = Other
BOOST	1 = Navy Boost Graduate, 0 = Other
NAPS	1 = Naval Academy Prep School Graduate, 0 = Other

2. Academic Performance and Technical Orientation

Admissions variables relating to academic achievement include standardized scores for high school class rank and individual high scores on the math and verbal Scholastic Aptitude Tests (SATs). High school class rank (RC) is a standardized score on a similar scale as SAT scores (Wahrenbrock & Neumann, 1989). The variable COLLPREP is also included, representing the number of college preparatory courses taken by an applicant.

Two variables representing variations of the midshipman candidate multiple measure are also included in this category. The candidate multiple is a weighted sum of points earned by each candidate for academic performance measures, extracurricular activity participation, secondary school official recommendations, and vocational interest scores derived from the Strong Campbell Vocational Interest Scale (Wahrenbrock & Neumann, 1989). Candidates can also earn additional points by subjective recommendation of the admissions board for special considerations such as military family background or special athletic talent. For this thesis, the candidate multiple variable (RAWCM) does not include additional points awarded by the admissions board. Furthermore, an additional variable was computed to represent individuals whose raw candidate multiple was in the top 10 percent of each in-coming class (TOP10CM). The candidate multiple was included in this category since over 62 percent of this measure is comprised of high school class rank and SAT scores.

Finally, the Technical Interest Scale (TISSTD) is a measure derived from the Strong Campbell Interest Inventory to ascertain a candidate's level of interest in a technically oriented curriculum (Wahrenbrock & Neumann, 1989). The Naval Academy

places significant emphasis on producing a majority of officers educated in engineering, science, or math curriculums.

Table 3.2 provides a summary of all academically oriented variables.

Table 3.2 Admissions Academic Variables

VARIABLE	DESCRIPTION of VARIABLE CODE
RC	High School Class Rank Standardized Score (range: 200-800)
SATMHI	High Score on Scholastic Aptitude Test (SAT) Math Portion
SATVHI	High Score on Scholastic Aptitude Test (SAT) Verbal Portion
COLLPREP	Number of College Preparatory Courses Taken
RAWCM	Raw Candidate Multiple - without additional points awarded by admissions board.
TOP10CM	1 = Individual who scored in top ten percent of candidate multiple, 0 = Other
TISSTD	Standardized Technical Interest Scale Score

3. Extracurricular Activities

Admissions variables also chronicle midshipman candidates' extracurricular involvement including a variety of pre-USNA athletic and leadership experience credentials. Athletic credentials are represented by athletic extracurricular activity scores (ATHECA) derived from each Candidate Activities Record (CAR), a form that summarizes high school extracurricular activity. The ATHECA score represents a rationally derived standardized score with a range of 300 to 800 (Wahrenbrock & Neumann, 1989).

Two additional variables identify those candidates with particularly superb athletic talent. The variable BLCHIP1 represents athletes of special interest to the Naval

Academy Athletic Association (NAAA). The variable RECRUIT represents individuals who were recruited by the NAAA to play a particular sport at the Naval Academy.

Leadership experience includes a large group of variables that convey different levels of experience in leadership and military culture. Each was obtained from the Candidate Activities Record (CAR). Cumulative years of participation in high school ROTC programs (HSROTC) is included as well as the number of years as a high school ROTC officer or Sea Cadet Petty Officer (HSROTCOF). Three variables represent participation in the Boy/Girl Scouts (SCOUT, SCOUTLDR, EAGLE), an organization that could be considered pseudo-military. Finally, three variables represent individuals' cumulative years as president or chairperson of a high school student council/government, high school class, or high school club (STGOVCUM, CLSSPRES, CLUBCUM).

As a possible measure of maturity or capacity for responsibility, the variable HSWORK was included, indicating the number of years in high school that an individual worked at a paying job on school days for the entire year.

A summary of these variables is included in Table 3.3 below.

Table 3.3 Admissions Extracurricular Activities Variables

VARIABLE	DESCRIPTION of VARIABLE CODE
ATHECA	Athletic ECA Standard Score
BLCHIP1	1 = Athlete of Special Interest to NAAA, 0 = Other
RECRUIT	1 = Recruited by NAAA for an Athletic Team, 0 = Other
HSROTC	Total Years, High School ROTC participation (10^{th}-12^{th} Grade)
HSROTCOF	Total Years, High School ROTC Officer (10^{th}-12^{th} Grade)
SCOUT	1 = Member of Boy/Girl Scouts, 0 = Other

VARIABLE	DESCRIPTION of VARIABLE CODE
SCOUTLDR	1 = Senior Troop Leader - B/G Scouts, 0 = Other
EAGLE	1 = Achieved Highest Award/Rank in Boy/Girl Scouting, 0 = Other
STGOVCUM	Total Years, Student Government/Council President (10^{th}-12^{th} Grade)
CLSSPRES	Total Years, High School Class President (10^{th}-12^{th} Grade)
CLUBCUM	Total Years, High School Club President (10^{th}-12^{th} Grade)
HSWORK	Total Years, Worked on High School Days (10^{th}-12^{th} Grade)

C. USNA PERFORMANCE/ACHIEVEMENT VARIABLES

A variety of variables related to midshipmen performance and success at the Naval Academy were included. Academic measures include grades in non-professional courses (ACADQPR) as well as grades in professionally oriented courses primarily covering material in seamanship, navigation, leadership, tactics, and military law (PRDVQPR). An additional variable, PCRQPR, represents the average grade on a yearly Professional Competency Review (PCR) that tested a midshipman's knowledge of naval platforms and naval professional material. This test is no longer administered at the Naval Academy, but remained a yearly routine for every midshipman in this study's sample.

With Academy's emphasis on producing technically oriented officers, it was of interest to include three variables representing the respective major of each midshipman. Majors at the Naval Academy are divided into three groups: group 1 - engineering and naval architecture, group 2 - science and math, and group 3 - humanities and social sciences. Group three majors primarily include history, English, economics, and political science curriculums. Since certain majors in the sample are no longer offered at the Naval

Academy, each major was confirmed to belong to a particular group by referencing USNA's command history files.

Other measures of performance at the Academy include conduct grades and military performance. Conduct grades essentially measure a midshipman's conformance to the regulations and is based on demerits and punishments awarded for violations. Though the nature of its criteria has changed somewhat over the years, military performance has remained a significant tool of assessment at the Naval Academy. Unsatisfactory military performance may be grounds for separation, while outstanding performance will likely result in selection to a high-ranking leadership position within the Brigade of Midshipmen. The military performance measure for this sample of midshipmen, as delineated in a 1976 Commandant of Midshipmen Instruction, was designed to "provide a composite evaluation of desirable qualities which are considered prerequisites to service as a commissioned officer in the U. S. Navy or Marine Corps" (U. S. Naval Academy, 1976, p.I-1). These qualities were established as the following: performance of duty, attitude, leadership, bearing and dress, and growth potential. Of all these qualities, it is interesting to note that leadership is defined in this instruction as the "ability to direct, control, and influence others in definite lines of action and of maintaining discipline" (U. S. Naval Academy, 1976, p.I-1).

For this sample, military performance grades were assigned by Company Officers after considering input from midshipmen supervisors, officer and civilian faculty, athletic coaches, watch officers, and officers in charge of midshipmen during temporary training assignments (U. S. Naval Academy, 1976). Depending on the source of input, different

forms were utilized to track and profile a midshipman's military performance. Company Officers were then required to rank, within each class, every midshipman in his/her company. This ranking was based, within the Company Officer's judgement, upon "all evaluations to the extent considered appropriate" (U. S. Naval Academy, 1976, p.II-5). Letter grades were then assigned, from "A" through "F," although the instruction emphasizes that a normal distribution of grades was not required as long as the distribution was not "skewed highly in either direction" (U. S. Naval Academy, 1976, p.II-7).

The remaining measures of midshipmen included in this study are a small group of binary variables representing achievement in academics, athletics, and military performance or leadership. The variable TRIDENT represents Trident scholars, individuals chosen for their academic excellence to pursue advanced independent research under the supervision of academic faculty. NLETTER represents those who earned varsity athletic letters in their final year at the Academy.

The variable focal to this study, STRIPER, represents those individuals chosen to lead the Brigade in their final year. Although there are a large variety of leadership positions at the Academy, this variable represents only those chosen to significant leadership positions. Following the work of Reardon (1997), such positions include the 36 Company Commander billets, the six Battalion Commander billets, the two Regimental Commander billets, the Brigade Commander billet, Commander of the Drum and Bugle Corps, and significant staff billets carrying the rank of Midshipman Lieutenant Commander (MIDN LCDR) and above. The Company Commander position is included

as Company Officers are likely to reserve one of their best leaders for this challenging leadership position instead of nominating all of their best to be "out-of-company" stripers. Reardon (1997) notes that the Academy currently defines the STRIPER variable in the same manner when studying the level of minority achievement at the Naval Academy. Stripers were identified from USNA's command history files and matched to midshipmen in the data base by name. The USNA variables also include class year and binary control variables indicating to which class an individual belonged.

Table 3.4 provides a summary of the USNA performance variables.

Table 3.4 USNA Performance/Achievement Variables

VARIABLE	DESCRIPTION of VARIABLE CODE
ACADQPR	Cumulative Non-professional Coursework Academic Average
PRDVQPR	Cumulative Professional Coursework Academic Average
PCRQPR	Cumulative Professional Competency Review Average
GROUP1	1 = Group I Major (Engineering/Naval Architecture), 0 = Other
GROUP2	1 = Group II Major (Science/Mathematics), 0 = Other
GROUP3	1 = Group III Major (Humanities/Social Science), 0 = Other
CONDQPR	Cumulative Military Conduct Grade
PERFQPR	Cumulative Military Performance Grade
TRIDENT	1 = Trident Scholar, 0 = Other
NLETTER	1 = Varsity Athletic Letter Winner (senior year), 0 = Other
STRIPER	1 = Brigade Leader (company commanders & M/LCDR and above), 0 = Other
CLASS	Class Year: 80 = 1980, 81 = 1981, 82 = 1982, 83 = 1983, 84 = 1984, 85 = 1985
CLASS80	1 = Member of Class of 1980, 0 = Other
CLASS81	1 = Member of Class of 1981, 0 = Other

VARIABLE	DESCRIPTION of VARIABLE CODE
CLASS82	1 = Member of Class of 1982, 0 = Other
CLASS83	1 = Member of Class of 1983, 0 = Other
CLASS84	1 = Member of Class of 1984, 0 = Other
CLASS85	1 = Member of Class of 1985, 0 = Other

D. POST-COMMISSIONING VARIABLES

The primary post-commissioning variable of interest, a binary variable representing those in the classes of 1980 through 1982 who have been promoted or selected for promotion to Commander, was constructed from a variety of other variables obtained from the Officer Master File. The result was the variable CDR, with a value of one for individuals who remained in the Navy until the Commander promotion board and were promoted or selected for promotion. Those promoted hold a current rank of Commander. Those selected for promotion have not yet been allowed to assume the rank of Commander, primarily for reasons concerning Navy manpower management and fiscal constraints.

The only other variables in this category of the data set include binary variables representing the Unrestricted Line (URL) officer community to which an individual belongs. The analysis of striper career success in the following chapter included only those individuals belonging to the primary URL communities; these are the central core of the Navy's "war-fighting" officer corps. These individuals also represent a large sample of officers who compete with one another for promotion. They include submarine officers, surface warfare officers (SWOs), pilots, and naval flight officers (NFOs). The variable

URLPRIME, with a value of one for those in the above communities, was used to filter the data set of those in other occupational specialties.

Table 3.5 provides a summary of the post-commissioning variables used in the analysis.

Table 3.5 Post-Commissioning Variables

VARIABLE	DESCRIPTION of VARIABLE CODE
CDR	1 = Promoted or Selected for Promotion to Commander (O-5)
SUBMARIN	1 = Submarine Officer, 0 = Other
SURFACE	1 = Surface Warfare Officer, 0 = Other
PILOT	1 = Pilot, 0 = Other
NFO	1 = Naval Flight Officer, 0 = Other
URLPRIME	1 = Unrestricted Line Officer in a Primary Warfare Community (Submarines, Surface Warfare, or Aviation only)

E. PRELIMINARY DATA ANALYSIS

1. USNA Admissions and Performance Data Analysis

The data base for this thesis provides a multitude of variables for analysis. Preliminary analysis began with an assessment of each binary variable's frequency among the 6014 midshipmen who graduated in the USNA classes of 1980 through 1985, as well as an assessment of the frequency of each variable among the 639 stripers in these six classes of midshipmen. The results are included in Table 3.6 on the following page. The frequencies included in the table indicate the number of midshipmen for which the binary variable has a value of one.

Table 3.6 Pre-USNA and USNA Binary Variable Frequencies for Sample and Stripers

VARIABLE	FREQUENCY for SAMPLE n = 6014	VALID % for SAMPLE	FREQUENCY for STRIPERS n = 639	VALID % for STRIPERS
SEX (1=female)	365	6.1	25	3.9
MINORITY	689	11.5	40	6.3
MILFAM	1182	19.7	129	20.2
REGNOM	277	4.6	34	5.3
RESNOM	651	10.8	55	8.6
SPNOM	236	3.9	22	3.4
FOUND	340	5.7	28	4.4
BOOST	34	.6	7	1.1
NAPS	838	13.9	77	12.1
BLCHIP1	1228	20.4	106	16.6
RECRUIT	1508	25.1	151	23.6
SCOUT	1318	21.9	139	21.8
SCOUTLDR	615	10.2	65	10.2
EAGLE	706	11.7	70	11.0
GROUP1	2262	37.6	266	41.6
GROUP2	2608	43.4	226	35.4
GROUP3	1144	19.0	147	23.0
TRIDENT	30	.5	11	1.7
NLETTER	857	14.3	69	10.8
TOP10CM	600	10.0	104	16.3
CLASS80	932	15.5	107	16.7
CLASS81	960	16.0	107	16.7
CLASS82	1044	17.4	105	16.4

VARIABLE	FREQUENCY for SAMPLE	VALID % for SAMPLE	FREQUENCY for STRIPERS	VALID % for STRIPERS
CLASS83	1063	17.7	106	16.6
CLASS84	986	16.4	107	16.7
CLASS85	1029	17.1	107	16.7

Examination of these results indicates that, compared to representation in the entire sample, stripers have a larger percentage of BOOST graduates, group one and three majors, and Trident scholars. Table 3.6 also indicates that, compared to the sample, a greater proportion of stripers scored in the top ten percent of the candidate multiple distribution for their class.

Table 3.6 also reveals that females, minorities, special interest athletes, USNA Foundation scholarship winners, NAPS graduates, group two majors, and varsity letter winners are somewhat underrepresented among stripers. However, with a few exceptions, most of the percentages for the sample and for stripers do not differ greatly. Among this sample of Brigade leaders, no particular type of individual or background seems to be blatantly excluded. Subsequent analysis utilizing more sophisticated regression techniques, presented in Chapter V, indicates whether disproportionate representation of any of these variables is statistically significant.

The next level of analysis included comparison of means for the continuous variables (such as grades and scores) between the sample and stripers in the sample. The results are presented in Table 3.7 on the following page.

Table 3.7 Pre-USNA and USNA Variable Means for Sample and Stripers

VARIABLE	n	MEAN for SAMPLE	STD DEV.	n	MEAN for STRIPERS	STD DEV.
IDAYAGE	5471	17.97	.852	574	17.96	.9174
RC	6008	585.7	107.48	639	617.6	110.46
SATMHI	6006	666.2	64.94	639	674.9	62.41
SATVHI	6006	577.0	71.06	639	586.6	69.25
COLLPREP	5885	3.838	2.3599	632	3.559	2.1985
RAWCM	5997	63275.2	4104.60	639	64554.5	3964.83
TISSTD	6003	508.2	95.33	639	494.8	94.66
ATHECA	4006	527.9	110.26	427	543.3	95.90
HSROTC	6014	.1806	.6787	639	.1393	.5933
HSROTCOF	6014	.1107	.4636	639	.089	.4151
STGOVCUM	6014	.059	.2689	639	.099	.3424
CLSSPRES	6014	.086	.3443	639	.153	.4633
CLUBCUM	6014	.057	.2883	639	.066	.2995
HSWORK	6014	.473	.9551	639	.518	1.0167
ACADQPR	6014	2.741	.4680	639	3.057	.4884
PRDVQPR	6014	2.994	.4301	639	3.272	.4247
PCRQPR	6014	2.368	.5857	639	2.563	.6051
CONDQPR	6014	3.759	.3612	639	3.912	.1623
PERFQPR	6014	3.161	.5593	639	3.823	.2430

It should be noted that ATHECA scores were not available for the classes of 1981 and 1982; hence, the n for this variable is only 4006.

As the means for these variables show, stripers have higher averages for RC, SATMHI, SATVHI, RAWCM, ATHECA, STGOVCUM, CLSSPRES, CLUBCUM,

HSWORK, ACADQPR, PRDVQPR, PCRQPR, CONDQPR, and PERFQPR. Thus, on average, it appears that stripers had higher high school class ranks, higher SAT scores, more involvement in sports, and tended to have more experience as leaders of their high school class, student government, or high school clubs. Moreover, they appeared to have spent more of their high school years working jobs during school days. Finally, the averages indicate that stripers outperform the rest of the Brigade in academics, professional knowledge and competency, military conduct, and military performance.

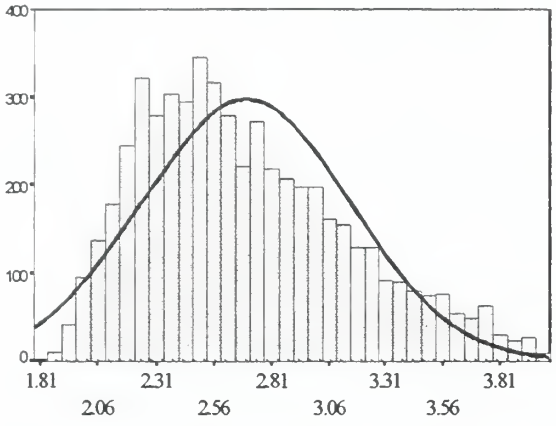
The results also indicate that the stripers in this sample completed, on average, fewer college preparatory courses and were, on average, less technically oriented than the rest of the Brigade.

To better illustrate the apparent higher performance of stripers, histograms of the four primary USNA performance measures are provided on the following pages. On the left, Figures 3.1, 3.3, 3.5, and 3.7 show the performance of all non-stripers in the Brigade. On the right, Figures 3.2, 3.4, 3.6, and 3.8 show the performance of the stripers.

From these figures, the higher performance of stripers is readily observed. In fact, by these measures, it might be said that they are the most successful midshipmen at the Naval Academy. The analysis in the remainder of this chapter, and the chapter that follows, focuses on whether success in these areas is predictive of future success as an officer, and presumably as a leader.

Figure 3.1

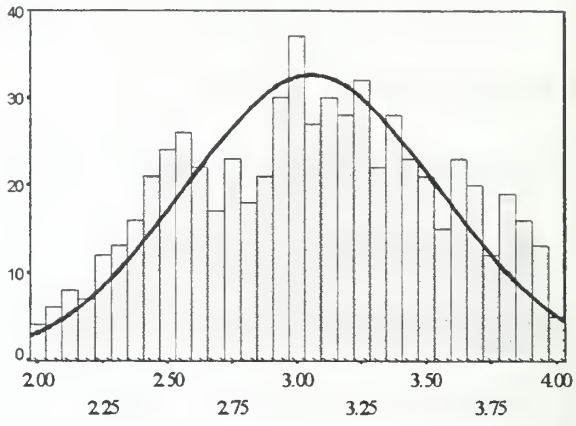
ACADQPR for Non-Stripers



Non-professional Academic Coursework QPR

Figure 3.2

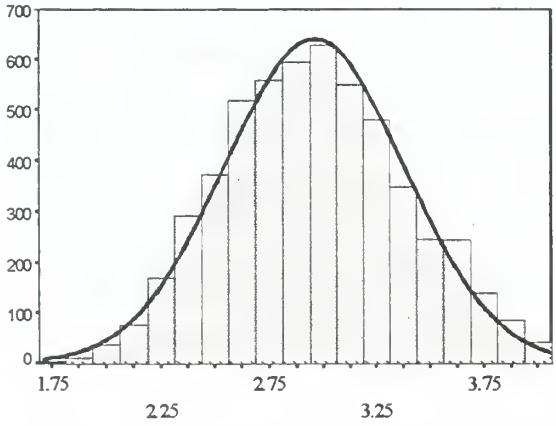
ACADQPR for Stripers



Non-professional Academic Coursework QPR

Figure 3.3

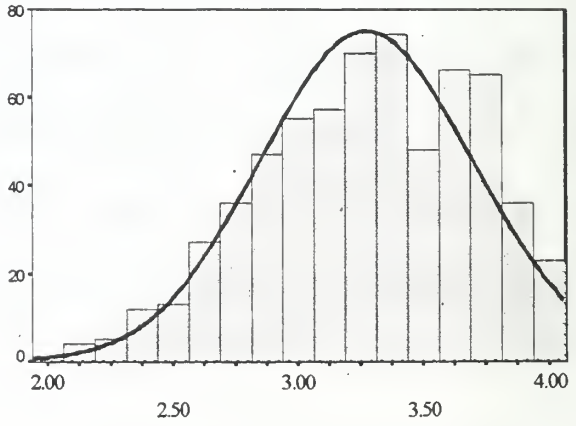
PRDVQPR for Non-Stripers



Professional Development Coursework QPR

Figure 3.4

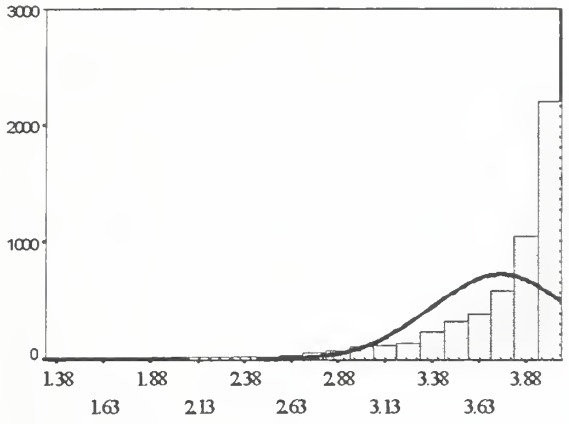
PRDVQPR for Stripers



Professional Development Coursework QPR

Figure 3.5

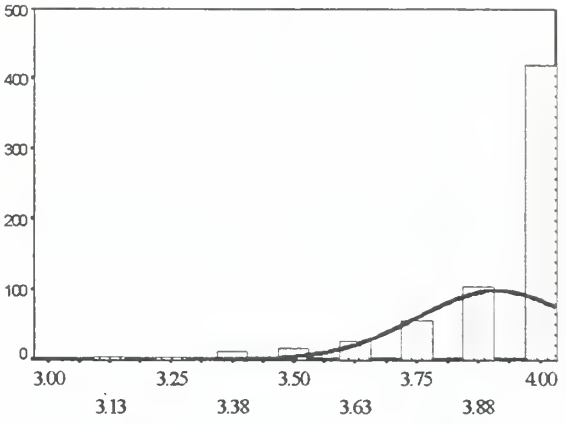
CONDQPR for Non-Stripers



Cumulative Military Conduct Grade

Figure 3.6

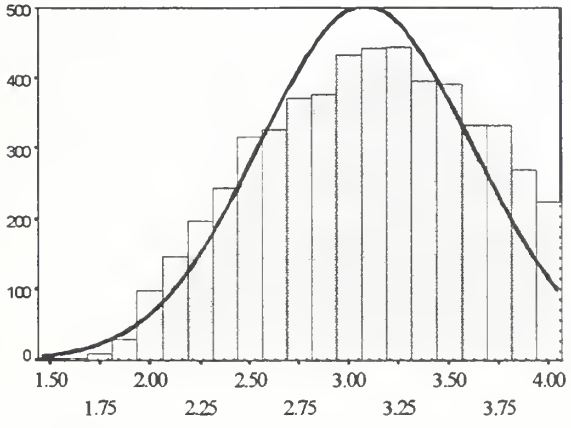
CONDQPR for Stripers



Cumulative Military Conduct Grade

Figure 3.7

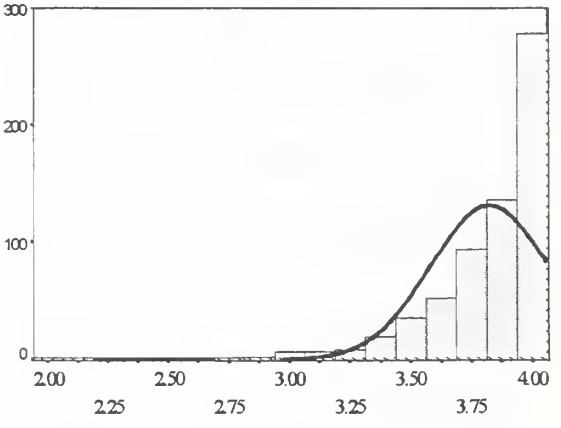
PERFQPR for Non-Stripers



Cumulative Military Performance Grade

Figure 3.8

PERFQPR for Stripers



Cumulative Military Performance Grade

2. Post-Commissioning Data Analysis

For reasons that will be explained in Chapter IV, the majority of the USNA admissions variables are excluded in the officer promotion analysis of USNA stripers. Preliminary analysis began, as in the previous section, with a comparison of binary variable frequencies between the sample and the focal group within the sample. As this section is concerned with the success of stripers at the O-5 (CDR) promotion board, frequencies were compared between the sample of officers who received at least one review at the O-5 board and those who were actually promoted or selected for promotion. Also included were cross-tabulations of the sample's stripers and the stripers who were promoted with the remaining variables. Table 3.8 contains the results. For the stripers, the last two columns represent a cross-tabulation of all stripers in the sample with remaining variables, followed by a cross-tabulation of promoted stripers with the remaining variables.

Table 3.8 Binary Variable Frequencies for Promotion Sample, CDR's, Stripers, and Stripers Promoted to CDR

VARIABLE	FREQ. for SAMPLE n = 658	VALID % for SAMPLE	FREQ. for CDRs n = 514	VALID % for CDRs	FREQ. for STRIPERS n = 86	FREQ. for CDR-STRIPERS n = 79
SEX (1=female)	9	1.4	8	1.6	2	2
MINORITY	60	9.1	49	9.5	3	2
MILFAM	177	26.9	143	27.8	27	25
RECRUIT	171	26.0	140	27.2	22	20
REGNOM	26	4.0	18	3.5	5	5
NAPS	89	13.5	69	13.4	9	8

VARIABLE	FREQ. for SAMPLE n = 658	VALID % for SAMPLE	FREQ. for CDR's n = 514	VALID % for CDRs	FREQ. for STRIPERS n = 86	FREQ. for CDR-STRIPERS n = 79
FOUND	41	6.2	31	6.0	3	2
GROUP1	279	42.4	217	42.2	42	40
GROUP2	264	40.1	206	40.1	30	28
GROUP3	115	17.5	91	17.7	14	11
TRIDENT	3	.5	3	.6	1	1
NLETTER	97	14.7	79	15.4	9	9
STRIPER	86	13.1	79	15.4	86	79
CLASS80	192	29.2	147	28.6	26	22
CLASS81	234	35.6	188	36.6	30	28
CLASS82	232	35.3	179	34.8	30	29
SUBMARIN	159	24.2	128	24.9	35	35
SURFACE	175	26.6	137	26.7	18	16
NFO	133	20.2	101	19.6	10	9
PILOT	191	29.0	148	28.8	23	19

The reader is reminded that this sample represents only USNA graduates in the primary URL communities listed in the table. The results in Table 3.8 show that each variable's representation among those promoted did not change dramatically from that of the entire sample considered for promotion. The greatest changes in proportions occurred for the variables STRIPER and RECRUIT. However, it remains unclear, by these results, whether these variables are significant predictors of promotion to the rank of Commander.

As with the continuous variables in the previous section, a comparison of means was completed for the primary USNA performance measures between the sample and

those promoted to Commander. The means and respective standard deviations are included in Table 3.9 below.

Table 3.9 USNA Performance Measure Means for Promotion Sample and CDR's

VARIABLE	n	MEAN for SAMPLE	STD DEV.	n	MEAN for CDRs	STD DEV.
ACADQPR	658	2.791	.4951	514	2.815	.5049
PRDVQPR	658	3.089	.4323	514	3.108	.4435
CONDQPR	658	3.735	.3723	514	3.731	.3731
PERFQPR	658	3.246	.5432	514	3.286	.5329

By this comparison, it appears that, with the exception of military conduct, those promoted to Commander averaged higher USNA performance in the areas presented. As earlier analysis showed, stripers in a larger sample demonstrated higher average performance in all these areas. Therefore, it is not surprising to find a high CDR promotion rate for them in Table 3.8. However, before leaving the issue of striper success in promotion to Commander and exploring the statistical significance of certain variables in striper selection at USNA, the following chapter presents a more sophisticated analysis of striper promotion success.

IV. STRIPER PROMOTION SUCCESS

A. BACKGROUND

This chapter examines the career success of officers that once held significant leadership positions at the Naval Academy. An approach similar to Reardon's (1997) was applied in which career success was measured by promotion results. Whereas Reardon (1997) focused on promotion to Lieutenant Commander (O-4), this analysis focused on promotion to the rank of Commander (O-5) for a sub-sample of the officers in Reardon's (1997) study.

Normally, officers are first considered for promotion to Commander 15 years after commissioning. The first consideration for promotion is typically referred to as an "in-zone look" or "regular look," as opposed to an "below-zone look" or "early look," where truly outstanding officers are considered for early promotion to the next rank. The "zone" describes the range of officers, determined by their officer lineal numbers that are being considered for promotion on schedule. The term "look" commonly refers to the promotion board's first opportunity to look at an officer's record and promote him/her to the next rank. Once an officer undergoes a regular look for promotion and is "passed over" (i.e., not selected for promotion), he/she will be considered again for promotion the following year. However, those not getting promoted on a regular look face greatly diminished odds for promotion on subsequent looks.

For this chapter, the first half of Reardon's (1997) cohorts, graduates from the classes of 1980-1982, were studied for their success in being promoted to CDR. In the

case of promotion to CDR, individuals who are passed over may continue to remain in service until promoted, forced to retire, and separated. However, the probability of promotion after a regular look is extremely small as individuals continue to compete with officers who are being considered for in-zone promotion. To date, each officer in these classes has had a regular and second look for promotion to Commander (CDR). In the case of the 1982 graduates, the results of the second look had not been released as of the time of this study. This is a minor limitation, though, as LCDR J. W. Funk of the Bureau of Naval Personnel's (BUPERS) Officer Promotion Plans indicates that only about 2 percent of officers considered for CDR on a second look get promoted (personal communication, July, 1998). The typical promotion rate to CDR, and that indicated by BUPERS for this sample, is 70-80 percent.

B. PROMOTION TO COMMANDER MODEL DEVELOPMENT

This analysis of career success for stripers does not include graduates of the Naval Academy who received commissions as Marine Corps officers. Furthermore, it is constrained, as was Reardon's (1997) study, to analyzing only those who are currently in the primary Unrestricted Line (URL) officer communities. This includes submarine officers, surface warfare officers (SWO's), pilots, and naval flight officers (NFO's). This is an important consideration, for all these individuals essentially compete with each other, without regard for warfare community, during each promotion board. Restricted Line officers (engineering duty officers, cryptologists, intelligence officers, etc.) are considered for promotion by a separate board. Finally, this analysis does not attempt to account for

those who may have transitioned into, or from, the major URL communities sometime after commissioning.

The promotion analysis does account for those who left the service before being considered for promotion to CDR. However, it does not attempt to analyze the retention characteristics of stripers. Therefore, the generality of the model's results are limited to the extent that stripers remain in, or do not leave, the Navy in greater proportions than non-stripers.

To develop the model, demographic variables and USNA performance measures were considered. Pre-USNA scores, such as SAT scores and high school class rank, were not considered for three reasons. The first was the desire to pursue a methodology consistent with that of Reardon (1997). The second was the belief that such measures hold limited value in trying to predict events so far removed from the time the measures were obtained. Third was the expected high correlation between SAT scores and high school class rank and USNA academics. However, to be consistent with Reardon's methodology, certain pre-USNA demographics, such as prior-enlisted service, were considered in the model.

Following the work of others, Reardon (1997) based his career potential models on the notion of human capital. Human capital is a term used to describe investments in workers in the form of training, education, and experience. Those workers, by virtue of that investment, represent value to their employers and society. The theory of human capital emphasizes the returns expected by society, employers, and the individuals on that investment (Reardon, 1997). In the case of naval officers, that return is expected in the

form of higher retention and promotability. This analysis focuses on the return of higher promotability given certain investments in each Naval Academy graduate. In particular, it focuses on the investment in the most senior midshipmen leaders.

In Reardon's (1997) models of Naval Academy graduates' career potential, human capital is accounted for in a variety of ways. At the Naval Academy and elsewhere, academics and training represent the bulk of investments in prospective naval officers. However, experience in leadership, especially for those with the most leadership potential, may represent a seriously undervalued form of human capital. At the Naval Academy, midshipmen stripers are chosen not only for their benefit, but also for the benefit of the Brigade and the Navy as a whole. As previously discussed, these individuals gain a unique opportunity to exercise leadership on a relatively large scale, compared to their peers, and gain significant leadership experience. The immediate return for the Naval Academy is one of positive role models and presumably, examples of what others need to be like if they are to succeed as leaders and military officers. The returns for the Navy come by way of encouragement and advanced leadership experience for these midshipmen before they enter the fleet. The return, then, is hopefully one of ensuring that our best midshipmen become our best career officers. It is expected then, that midshipmen stripers, having accrued more human capital than their peers, have a statistically significant advantage for promotion.

Reardon's (1997) analysis found that stripers do not seem to have a statistical advantage in promotion to LCDR, the first significant gate in a junior officer's pursuit of a military career. However, the leadership and promotion dynamics that occur beyond that

first significant gate may show otherwise. At this point in an officer's career, it may be that strengths identified by Naval Academy superiors and the striper selection process are just beginning to separate those individuals from their peers. If this isn't the case, it may be that the selection process does not consistently identify those who possess superior leadership qualities that enable a maximum return on the investment in them.

Since the Naval Academy is an academic institution, its focus is primarily on academics. Therefore, the potential exists that the emphasis on academics influences perceptions of leadership potential when individuals appear dedicated and committed to their academic endeavors and display responsible behavior. In the fleet Navy, however, assessments of leadership potential, and therefore of suitability for promotion, will likely be more affected by demonstrations of affective, "people" skills, especially in the more junior officer ranks. The ability to "take care of your people" immediately becomes a measure of success for newly commissioned junior officers, much more so than at the Naval Academy. It may be that the experience required to develop such skills is beyond the scope of leadership development at the Naval Academy, even for stripers. As officers progress through the ranks, other skills associated with responsibility for larger numbers of people and equipment may be more similar to those strengths identified by the Naval Academy's striper selection process. By assessing the impact of a multitude of human capital investments at the Naval Academy on an officer's likelihood of promotion, this chapter questions whether the potential identified in past midshipmen leaders develops significance in the transition to senior officer.

This chapter presents the following hypothesis to be tested:

Compared to other Naval Academy graduates, past Brigade leaders hold a statistically significant advantage in getting promoted to the rank of Commander, holding demographics and all other measures of USNA performance constant.

The model used to test this hypothesis is empirically specified as follows:

Promotion to Commander = f (Demographic Variables, USNA Performance Measures, STRIPER)

Logistic regression was utilized to test this relationship. Logistic regression offers a probabilistic model that best predicts the value of a binary or dichotomous variable. The dependent variable in this case, representing the whether an individual was promoted to Commander or not, was labeled CDR (promoted = 1). In this case, the methodology essentially calculates the probability that an individual will be a Commander given the value of an independent variable in the model (Pindyck & Rubinfeld, 1991).

The null ($\mathbf{H_0}$) and alternative ($\mathbf{H_A}$) hypotheses are represented as follows:

$$\mathbf{H_0}: \beta_{striper} = 0$$
$$\mathbf{H_A}: \beta_{striper} > 0$$

The variable β represents each of the coefficients of the explanatory independent variables in the model. For every one unit change of an independent variable while holding all other variables constant, the coefficient indicates the change in the log of the odds that an individual will be a Commander (Pindyck & Rubinfeld, 1991). The null hypothesis indicates that if there is not a positive relationship between the independent variable STRIPER and dependent variable CDR, then the coefficient of STRIPER will be equal to (or less than) zero.

Demonstration that such a relationship exists will be indicated by a significant, positive coefficient from the regression results. In such case, the null hypothesis is rejected, indicating that the variable STRIPER has positive explanatory power for the variable CDR.

C. SPECIFICATION AND ANALYSIS OF PROMOTION MODEL

The original sample of URL officers from the Naval Academy included 683 officers from the classes of 1980, 1981, and 1982. This sample was reduced to 658 by officers who left the service before the their first normal opportunity to be promoted to CDR. Thus, this number represents the number of URL officers from these classes who remained in the Navy until the O-5 board. Of these 658 officers, 514 were selected for promotion, representing an average promotion rate of 78 percent, a value consistent with that obtained from BUPERS.

Of the 658 officers considered for promotion, 86 were stripers, and 79 of those individuals were promoted. On the following page, Table 4.1 depicts, by class, the promotion rates for stripers as compared to that of the entire class. As stated in Chapter III, those promoted have assumed the rank of Commander; those selected have not yet assumed their new rank due to manpower management reasons.

Table 4.1

USNA Class of 1980 : Promoted or Selected for CDR

		Frequency for Class	Valid Percent	Frequency for Stripers	Valid Percent
Valid	Not promoted/selected	45	23.4	4	15.4
	Promoted/selected	147	76.6	22	84.6
	Total	192	100.0	26	100.0

USNA Class of 1981 : Promoted or Selected for CDR

		Frequency for Class	Valid Percent	Frequency for Stripers	Valid Percent
Valid	Not promoted/selected	46	19.7	2	6.7
	Promoted/selected	188	80.3	28	93.3
	Total	234	100.0	30	100.0

USNA Class of 1982 : Promoted or Selected for CDR

		Frequency for Class	Valid Percent	Frequency for Stripers	Valid Percent
Valid	Not promoted/selected	53	22.8	1	3.3
	Promoted/selected	179	77.2	29	96.7
	Total	232	100.0	30	100.0

From this composite table it appears that, compared to other graduates, stripers enjoy promotion success at a higher level. What this table does not address, however, is whether the variable STRIPER is statistically significant on its own when promotion is modeled so that other variables in addition to STRIPER are included. Furthermore, significant correlations with other variables, if not carefully examined, might erroneously indicate that STRIPER is statistically insignificant in the model of promotion to Commander.

The primary issue of concern is the strong correlation between USNA military performance and the variable STRIPER. Since military performance is a significant determinant in the nomination of midshipmen for a striper billet, this is not surprising.

Since Reardon (1997) used both variables in his model, he cautions against dismissing the STRIPER variable as insignificant by noting the simple correlation between the variables as r = .40 (p. 158). However, his analysis of the pilots in his sample does show that both variables can remain in the model and retain significance, despite the correlation. For this reason, both variables were included in this model.

The initial specification for the promotion model in this study merely replicates the design of Reardon's (1997) third human capital model which, following the work of others, specified two different types of human capital—cognitive skills and affective skills. Cognitive skills are represented by the variables ACADQPR, PRDVQPR, and TRIDENT. The variables CONDQPR, PERFQPR, STRIPER, and NLETTER represent affective skills. It is assumed that these variables represent attributes related to emotional maturity, responsibility, leadership, military bearing, and an ability to work in a team environment.

To maintain the integrity of Reardon's design in the initial specification, the following demographic variables were included: MINORITY, SEX, MILFAM, REGNOM, RECRUIT, FOUND, NAPS, GROUP1, GROUP3. The variables CLASS80, CLASS81, CLASS82, SURFACE, SUBMARIN, PILOT, and NFO were used as control variables. Some of the variables (REGNOM, FOUND, and NAPS) differ slightly than those included by Reardon (1997), but the concepts they represent are essentially the same.

Missing data reduced the sample to n = 652. The results of the initial and final specification are included in Table 4.2 on the following page. Numbers in bold indicate significance at the .10 level.

Table 4.2 Logistic Regression Estimations for CDR Promotion Model

VARIABLE	INITIAL ESTIMATION		FINAL ESTIMATION	
	n = 652, df = 22		n = 658, df = 18	
	COEFFICIENT	SIG.	COEFFICIENT	SIG.
Constant	.6318	.8615	.4819	.7011
SEX	.6979	.5229	.7158	.5104
MINORITY	.5798	.1408	.5673	.1324
MILFAM	.1996	.3899	.2534	.2683
RECRUIT	**.4971**	**.0606**	**.5674**	**.0272**
REGNOM	-.4592	.4391	--	--
NAPS	.1187	.7372	--	--
FOUND	-.2034	.6423	--	--
GROUP1	-.0780	.7399	-.0599	.7952
GROUP3	-.1287	.6563	-.0959	.7371
TRIDENT	4.5424	.7150	3.5229	.6420
NLETTER	.2211	.4585	.2526	.3955
ACADQPR	.2548	.4918	.2922	.4232
PRDVQPR	.0142	.9729	.1516	.7087
CONDQPR	**-.7260**	**.0201**	**-.7647**	**.0137**
PERFQPR	**.6919**	**.0061**	**.6402**	**.0087**
STRIPER	**1.0375**	**.0239**	**.8779**	**.0421**
CLASS81	.1611	.5253	.2206	.3754
CLASS82	.0552	.8251	.1122	.6440
SUBMARIN	-.2071	.5167	-.2263	.4760
NFO	-.1477	.6090	-.1303	.6488
PILOT	-.0717	.7936	-.1270	.6355
Chi Square	**37.489**	**.0209**	**37.181**	**.0050**

The initial estimation's chi square of 37.489 with 22 degrees yields a model significance of .0209. Therefore, the model does demonstrate explanatory power. Furthermore, the results also indicate that, despite their simple correlation of r = .407, STRIPER and PERFQPR are both positive and significant at the .05 level. Therefore, the null hypothesis concerning STRIPER significance is rejected. Other things equal, the variable STRIPER does significantly explain promotion to O-5.

In the second estimation, NAPS, FOUND, GRADAGE, and REGNOM were removed from the model due to insignificance and lack of usefulness in the model. The second estimation represents a model with some basic demographics and the primary measures of performance and success at the Naval Academy. Though statistically insignificant, the basic demographic variables and insignificant USNA performance variables were left in the model to illustrate their lack of effect on promotion to CDR.

The second estimation improved the model's chi square, without drastically affecting the significant coefficients. A surprise result of both estimations is the negative significance of CONDQPR. Though the mean conduct grade between those who were promoted (3.7313) and those who were not (3.7488) differed by only .0175, histograms of both sets of conduct grades shows that the distribution for those <u>not</u> promoted is definitely more skewed to the right. If conduct grades represent a pattern of behavior associated with personality, it may be that somewhat lower conduct grades indicate a willingness to take some risk and stretch the boundaries of what is normally allowed; being too agreeable may be perceived negatively by some superiors. As Atwater and Yammarino (1993) suggest, boldness has been hypothesized to be a predictor of transformational leadership.

Those willing to take some risks (i.e., break some regulations they do not agree with), may possess the kind of transformational boldness found desirable by fleet superiors. Though not statistically significant in his study, Reardon (1997) also obtained a negative coefficient for CONDQPR in his third human capital model.

The findings concerning the variable RECRUIT are consistent with the literature supporting athletic achievement or participation as a predictor of leadership. As found in the study of midshipmen by Atwater and Yammarino (1993), such experience may help potential leaders develop teamwork skills and the ability to motivate others. Though it was mildly correlated with RECRUIT ($r = .223$), NLETTER is likely insignificant due to number of reasons difficult to assess. It may be that a good number of varsity athletes, depending upon the individual and the sport, focused on athletics at the Academy to the exclusion of other education, training, and leadership experience. These individuals may later be found lacking in certain skills or attributes needed for success as a senior officer. Conversely, various interests or personality characteristics may have gradually driven some recruited athletes away from athletics at the Naval Academy, after they had already reaped significant benefits from earlier participation. The variable RECRUIT, then, likely represents a significant group of very well rounded individuals who demonstrate high competence and interpersonal leadership skills. Of the 514 individuals promoted to Commander, 140 were recruited athletes. Of those recruited athletes, only 39 earned varsity athletic letters in their senior year.

Encouraging is the finding that gender and race do not seem to place anyone at a statistical disadvantage at this stage of promotion. Of the 9 females who were considered,

8 were promoted. However, they only represent 1.4 percent of the entire sample. Of the 60 minorities, representing 9.1 percent of the sample, 49 were promoted. Both females and minorities were promoted at rates almost perfectly proportionate to their representation in the sample. The author cautions that these findings present a very limited view of the equity in the promotion system.

The finding focal to this chapter, however, is the statistical significance of the STRIPER variable, despite moderate correlation to PERFQPR. The significance of the PERFQPR variable for USNA graduates' promotion to Commander furthers the work of Reardon (1997) and others concerning this measure. The significance of the STRIPER variable gives the first evidence that the leadership selection process at the Naval Academy may hold high predictive validity for graduates being considered for promotion later in their careers.

D. CONCLUSION

Reardon's (1997) findings and the results of this chapter seem to reveal certain truths about past midshipmen leaders. It appears that, despite the great potential identified in these individuals, the first years after commissioning may act as a leveling ground for graduates of the Naval Academy. As stated earlier, the affective skills required of a strong junior officer might require more experience than the Naval Academy alone can offer. Or, it may still be that all stripers are not necessarily the best leaders. By Reardon's (1997) results, they don't necessarily represent the best of the junior officers among USNA graduates. However, it appears that those who do succeed as junior officers consistently

possess a more comprehensive set of attributes and skills for leadership later in their careers, or at least those desired by the Navy hierarchy and promotion system. The results in this chapter seemingly indicate that those stripers who "make it" as junior officers have a highly significant chance of being promoted to the rank of Commander. Identifying what the Academy's leadership selection process is discovering in these individuals may provide additional insight into the dynamics of successful leadership. Furthermore, such analysis may suggest the need for additional leadership assessment tools to increase the return on the human capital invested in the Academy's midshipmen leaders.

V. STRIPER SELECTIVITY

A. MODEL DEVELOPMENT

The previous chapter demonstrated the statistical significance of midshipman leadership positions as a factor for promotion to Commander among Naval Academy graduates in the major URL communities. The attention in this chapter turns to those characteristics that have statistical significance in determining who, among Naval Academy midshipmen, are likely to be chosen as stripers. The purpose of this chapter was to determine whether certain demographics or individual strengths create a statistically significant advantage for striper selection among those who enter and graduate from the Naval Academy. Those who did not graduate were not considered in the analysis.

1. Pre-USNA Model

First, consideration was given to the significance of high school and other pre-Academy variables in the selection of Brigade leaders. Specifically, what are the common pre-USNA attributes among those who were selected to be Brigade stripers? As candidates for admission, were they the strongest academic performers? Prior to entering the Academy, had they already held leadership positions in or outside of high school organizations and athletics? Did they have significant military or scouting experience? In other words, is the Naval Academy actually "creating" stripers, or is their selection statistically predetermined at admission?

To answer this question, a variety of variables were hypothesized to effect striper selection in different ways. Due to the level of minority representation at the Naval Academy during the late seventies and early eighties (the time during which those in the sample were midshipmen), it may be that minority status had a negative statistical impact on being selected for a leadership position. Since the classes in the sample were among the first to include women, it is very likely that being female had a negative impact on being selected. Based on the emphasis that the Naval Academy places on prior academic achievement and technical competence, it was hypothesized that those with the strongest academic backgrounds and technical orientation (measured by high SAT scores, especially SAT Math, and scores on the Strong Campbell Technical Interest Scale) have the greatest likelihood of achieving leadership positions within the Brigade. Furthermore, it was also believed that previous demonstrations of leadership potential, such as leadership of a high school student body or extracurricular activity, add predictability to a midshipman's selection to a striper position. Boy Scouts and those who come to the Naval Academy from military preparatory schools and the enlisted ranks have had the most military socialization, leadership experience, and exposure to leadership behaviors. Consistent with the Reardon's (1997) notion of selectivity, it was assumed that admitting individuals with this experience increases their odds of success in a "leadership laboratory," including attainment of leadership positions. Finally, the work of Atwater and Yammarino (1993) further demonstrated the correlation of athletic success and leadership skills. Based on these findings, it was hypothesized that those with greater high school athletic experience have an advantage in being selected for a striper billet.

Based on pre-USNA attributes, a model of striper selection was constructed to test the following hypothesis:

> *Those selected over other midshipmen for striper positions within the Brigade have common demographic characteristics, the strongest academic backgrounds, and the most pre-USNA athletic and leadership experience.*

The proposed model is empirically specified as follows:

STRIPER SELECTION = f (Demographic variables, Pre-USNA Academic Credentials, Pre-USNA Athletic Experience, Pre-USNA Leadership Experience)

Logistic regression was the primary methodology employed to test this relationship. As stated in Chapter IV, logistic regression offers a probabilistic model that best predicts the occurrence of binary or dichotomous variable such as STRIPER. In the case of STRIPER, the methodology essentially calculates the probability that an individual will be a striper given the value of an independent variable in the model (Pindyck & Rubinfeld, 1991).

The null ($\mathbf{H_0}$) and alternative ($\mathbf{H_A}$) hypotheses are represented as follows:

$$\mathbf{H_0}: \beta_{\text{pre-USNA}} = 0$$
$$\mathbf{H_A}: \beta_{\text{pre-USNA}} \neq 0$$

The variable β represents each of the coefficients of the explanatory independent variables in the model. For every one unit change of an independent variable while holding all other variables constant, the coefficient indicates the change in the log of the odds that an individual will be a striper (Pindyck & Rubinfeld, 1991). The null hypothesis indicates that if there is no relationship between the independent variables and dependent variable

STRIPER, then the coefficients of the independent variables will equal zero. Confirmation of the null hypothesis indicates that there is no relationship between striper selection at the Naval Academy and demographics, pre-USNA academics, pre-USNA leadership experience, and pre-USNA athletic experience.

Demonstration that there is a relationship between these variables and the odds that an individual was selected to be a striper (i.e., the coefficients are not zero) results in rejection of the null hypothesis. Instead, the alternative hypothesis is accepted, indicating that the model does have explanatory power for the variable STRIPER.

2. USNA Performance Model

The second portion of the analysis examined the impact of USNA performance measures on the probability of selection for a Brigade leadership position. Does academic performance play a statistically significant role in the selection process? Do USNA varsity sports athletes tend to rise to these positions? Does the process create a statistical disadvantage for selection among those in non-technical majors or among minorities?

Since the military performance grade is the primary measure of leadership at the Naval Academy, it was expected to have a highly significant impact on striper selection. Previous analysis in this study, and that of Reardon (1997), indicate a simple correlation of $r = .40$ between these variables (p.158). Conduct grades, essentially a measure of conformity to the Naval Academy regulations, were also expected to have a positive impact on striper selection. Since success at USNA is highly dependent upon academics, it was also expected that academic record plays a role in striper selection. Despite

Vickers' (1995) findings that leadership measures are distinct from academic performance, it was hypothesized that academic grades drive perceptions of a midshipman's dedication and cognitive aptitude for managerial and leadership positions. If so, military performance may also be impacted by academics; academics may then influence striper selection independent of, and through, the military performance measure. Finally, it was hypothesized that athletic achievement will also positively influence an individual's odds for striper selection.

This portion of the analysis focused primarily on the impact of USNA academic performance on the leadership selection process, as reflected in the following hypothesis:

> *Academic grades have a significant, positive impact on the odds of striper selection for midshipmen at the Naval Academy.*

To test this hypothesis, the following model was proposed:

STRIPER SELECTION = f (Demographic variables, USNA Midshipman Performance Measures)

The null ($\mathbf{H_0}$) and alternative ($\mathbf{H_A}$) hypotheses are represented as follows:

$$\mathbf{H_0}: \beta_{\text{academics}} = 0$$
$$\mathbf{H_A}: \beta_{\text{academics}} > 0$$

The null hypothesis stipulates that, holding all other midshipman performance measures constant, academic performance at the Naval Academy does not have a significant, positive impact on the selection of Brigade stripers. The alternative is that, holding all other variables constant, higher academic performance increases the odds of a midshipman being selected as a striper.

Finally, further analysis attempted to identify pre-USNA variables that, in conjunction with the USNA performance measures, continue to have a statistically significant effect on striper selection. The result was a recursive model that includes pre-USNA variables that contribute to the USNA performance measures as well as independently predict the likelihood of becoming a striper.

B. MODEL ANALYSIS

1. Specification and Results of Pre-USNA Model

The original sample in the analysis included 6014 former midshipmen from the classes of 1980 through 1985. The total number of stripers in the sample was 639, representing 10.6 percent of the total sample. The sample was reduced mostly by missing ATHECA scores, which were not available for 2 of the 6 classes in the sample. However, including ATHECA in the model was deemed important to capture the impact of athletic participation on being selected for leadership positions. With ATHECA included, the sample for this model was reduced to n = 4006, with 427 stripers representing 10.6 percent of the reduced sample.

To test the hypothesis, three general categories of variables were examined and implemented in one model to predict striper selection from admissions data. Demographic variables, academic credentials, athletic experience, and leadership experience were considered. The demographic variables included in the initial model and their expected impact on striper selection are as follows: SEX (-), MINORITY (?), IDAYAGE (+), HSWORK (+), MILFAM (+), SPNOM (+), REGNOM (+), FOUND (+), BOOST (+),

and NAPS (+). Reserve nominees (RESNOM) were not included due to possible confusion with NAPS students, all of whom are required to enlist in a reserve status to attend NAPS (Reardon, 1997, p. 82). SEX (1=Female) was expected to have a negative impact on striper selection since the sample included the first classes with female midshipmen and the prevailing attitude may not have been receptive to their presence. The variables expected to have a positive impact (IDAYAGE through NAPS) were presumed to be associated with greater maturity and more exposure to military culture and leadership behaviors.

Academic credentials and technical orientation were all assumed to have a positive impact on striper selection. They included SATMHI (+), SATVHI (+), RC (+), COLLPREP (+), and TISSTD (+). Class rank (RC) is a standardized score on the same scale as the SAT scores, with 800 representing the highest ranking within the class.

Athletic experience was represented in the model by the variables ATHECA (+) and RECRUIT (+); both were expected to have a positive impact.

Leadership experience was represented in the model by the variables EAGLE (+), SCOUTLDR (+), CLSSPRES (+), CLUBCUM (+), STGOVCUM (+), and HSROTCOF (+). The variable SCOUT was excluded from the initial estimation due to excessive correlation with the variables EAGLE and SCOUTLDR.

The results of the logistic regressions for pre-USNA variables are provided in Table 5.1. Based on the initial estimation's chi square of 100.822 with 23 degrees of freedom, the null hypothesis was rejected as the model does demonstrate explanatory

Table 5.1 Logistic Regression Estimations for Pre-USNA STRIPER Model

VARIABLE	INITIAL ESTIMATION		FINAL ESTIMATION	
	n = 3657, df = 23		n = 3883, df = 14	
	COEFFICIENT	SIG.	COEFFICIENT	SIG.
Constant	**-6.9278**	**.0004**	**-5.1848**	**.0000**
SEX	**-.7567**	**.0057**	**-.7724**	**.0035**
MINORITY	-.2188	.2987	-.2404	.2325
IDAYAGE	.0979	.2845	--	--
HSWORK	.0651	.1832	.0592	.2071
MILFAM	.1523	.2882	--	--
SPNOM	.0665	.8336	--	--
REGNOM	-.1617	.6607	--	--
FOUND	-.2291	.4515	--	--
BOOST	**1.1789**	**.0684**	**1.1610**	**.0387**
NAPS	-.0702	.7398	--	--
SATMHI	.0014	.1849	.0014	.1464
SATVHI	.0003	.7459	.0005	.5488
RC	**.0034**	**.0000**	**.0033**	**.0000**
TISSTD	**-.0015**	**.0123**	**-.0015**	**.0083**
COLLPREP	**-.0633**	**.0195**	**-.0639**	**.0097**
ATHECA	**.0015**	**.0078**	**.0014**	**.0081**
RECRUIT	.1407	.3397	.1651	.2365
EAGLE	.0367	.8597	--	--
SCOUTLDR	-.0240	.9040	--	--
CLSSPRES	**.2638**	**.0582**	**.3094**	**.0178**
CLUBCUM	-.0307	.8515	--	--
STGOVCUM	.2470	.1369	.2599	.1054

VARIABLE	COEFFICIENT	SIG.	COEFFICIENT	SIG.
HSROTCOF	-.2118	.1638	--	--
HSROTC	--	--	-.1142	.1905
Chi Square	**100.822**	**.0000**	**107.819**	**.0000**

Note: Bold indicates significance at .10 level.

power. The Wald statistic, which approximates t^2 for large samples, was used to test the statistical significance of the coefficients (Pindyck & Rubinfeld, 1991). The significance of each coefficient is shown in the table. Numbers in bold represent variables that were significant at the .10 level.

Variables lacking significance were removed from the model after careful consideration of multicollinearity between variables. Pearson correlations were obtained and coefficients were observed for stability as insignificant variables were removed. For example, a positive correlation was discovered between EAGLE and SCOUTLDR (r =.49). Each was entered into the model individually, but neither approached significance. In fact, even participation in scouting (represented by the variable SCOUT) was found to be insignificant.

A positive correlation was found between SPNOM and HSROTCOF (r = .373), but neither individually produced significant coefficients in the model. The more general variable HSROTC offered some promise, however. IDAYAGE was removed from the model due to mild to moderate positive correlations with BOOST, FOUND, and NAPS; it was found to be negatively correlated to RC (high school class rank). REGNOM was also correlated with BOOST (r = .322) and NAPS (r = .287) and was removed from the model

due to very low significance. MILFAM, FOUND, and CLUBCUM did not show significant correlation to any other variables and none approached significance in the model.

Even after accounting for mild to high correlation with COLLPREP (r = -.213), RC (r = -.348), REGNOM (r = .287), SATMHI (r = -.292), and IDAYAGE (r = .452), the NAPS variable never approached significance and was removed in the final estimation of the model.

The final estimation of the model includes several variables that remain insignificant. With the exception of SATVHI, all of these variables, with significance less than or approaching .20, show some promise as predictors of STRIPER. They also represent important conceptual factors (leadership experience, team-player mentality, etc.) in the selection of leaders. SATVHI was retained in the model to illustrate its lower significance as compared to SATMHI.

Multiple correlations between the variables SATMHI, SATVHI, RC, and MINORITY make it difficult to assess the true impact of each on the model. Of these, however, it seems clear that high school class rank (RC) and SATMHI hold the greatest statistical significance.

Because of the multicollinearity between these variables, it was deemed useful to consider a model in which SAT scores and class rank (RC) are replaced with the midshipman candidate multiple (RAWCM). SATMHI (24 percent), SATVHI (12 percent), and RC (26 percent) constitute 62 percent of the candidate multiple (Reardon, 1997). The technical interest scale, TISSTD, adds an additional 12 percent. The

remaining 26 percent of RAWCM is divided among recommendations of secondary school officials (14 percent), extracurricular activities (eight percent), and military career interest derived from the Strong Campbell Interest Inventory (four percent) (Reardon, 1997). Recommendations by the admissions board may add points to this multiple based on additional recommendations, military family background, and special demographics, such as minority status or special interest to Naval Academy's athletic programs. The variable RAWCM, however, did not include points added by recommendation.

Replacing SATMHI, SATVHI, and RC with RAWCM, additional regressions did not produce a significant effect on the coefficients or significance of the remaining variables with the exception of MINORITY and RECRUIT. Table 5.2 contains the results. Multicollinearity analysis revealed negative correlations between MINORITY and RAWCM (r = -.235) and RECRUIT and RAWCM (r = -.330). The variable BOOST was affected mildly, but remained significant.

Table 5.2 Logistic Regression Estimations for STRIPER Model Using Candidate Multiple

VARIABLE	RAWCM ESTIMATION		TOP10CM ESTIMATION	
	n = 3879, df = 12		n = 3879, df = 12	
	COEFFICIENT	SIG.	COEFFICIENT	SIG.
Constant	**-8.3108**	**.0000**	**-1.8872**	**.0000**
SEX	**-.7030**	**.0074**	**-.6164**	**.0187**
MINORITY	-.1036	.6013	**-.3805**	**.0489**
HSWORK	.0580	.2151	.0512	.2717
BOOST	**.9519**	**.0882**	.6531	.2399
TISSTD	**-.0016**	**.0037**	**-.0014**	**.0137**

VARIABLE	COEFFICIENT	SIG.	COEFFICIENT	SIG.
COLLPREP	**-.0594**	**.0162**	**-.0608**	**.0139**
ATHECA	**.0012**	**.0267**	**.0011**	**.0294**
RECRUIT	.1953	.1570	-.0603	.6482
CLSSPRES	**.3086**	**.0179**	**.3164**	**.0147**
STGOVCUM	**.2620**	**.1009**	**.2844**	**.0736**
HSROTC	-.1064	.2225	-.1089	.2108
RAWCM	**.0001**	**.0000**	--	--
TOP10CM	--	--	**.6677**	**.0000**
Chi Square	**104.780**	**.0000**	**72.948**	**.0000**

Note: Bold indicates significance at .10 level.

To better capture the impact of pre-USNA performance on the odds of becoming a midshipman striper, the variable TOP10CM was entered into the model in place of RAWCM. TOP10CM is a binary coded variable representing those in the top 10 percent of each incoming midshipmen class by raw candidate multiple. The resulting estimation in Table 5.2 shows that being among those individuals offers a highly significant statistical advantage for selection as a Brigade leader.

The change in the usage of candidate multiple had the most effect on MINORITY, BOOST, and RECRUIT. MINORITY most likely achieved significance due to its minimal correlation to TOP10CM (r = -.084), as opposed to its more significant correlation (r = -.235) to RAWCM. RECRUIT was likely affected throughout all the models by a complex correlation with MINORITY, ATHECA, and COLLPREP.

As a reminder, it is noteworthy that over 62 percent of the candidate multiple is comprised of three simple, academically oriented measures: high school class rank, SAT

math score, and SAT verbal score. At least in this sample, it appears that these high academic performers are later perceived to be the most suitable for leadership positions at the Academy.

Analysis of the USNA performance model indicated whether individuals who demonstrate continued academic excellence relative to their peers maintain a statistical advantage in attaining leadership positions at the Naval Academy.

2. Specification and Results of USNA Performance Model

The sample for this portion of the analysis included all 6014 Naval Academy graduates from the classes 1980 through 1985. Missing data reduced the sample to 6009, including 639 stripers again representing 10.6 percent of the reduced sample.

To test the hypothesis concerning the statistical significance of USNA academic performance in achieving a striper billet, both logistic and linear regression methods were used. Demographics and USNA performance measures were considered. Although the USNA performance measures represent the final scores for midshipmen after their entire four years, it was confirmed that each midshipman's overall standing in academics, conduct, military performance, and professional courses did not change appreciably in the final year at the Academy.

Academic performance was primarily represented by the variables ACADQPR and PRDVQPR. As indicated in Chapter III, ACADQPR represents grades in non-professional courses; the term "non-professional" is used to distinguish core curriculum

and majors courses from professional development courses in leadership, navigation, military law, etc. Grades in the latter courses were represented by PRDVQPR.

An important matter of consideration for this model was the appropriateness of including the variable PERFQPR. Representing a midshipman's cumulative military performance grade, it was not included in the model for two reasons. First, although it may not be used to directly compare midshipmen during the striper selection process, it is the primary measure used to assess and compare leadership ability. As such, it becomes significant in nominating midshipmen to be considered for the selection process. Therefore, its inclusion would introduce a simultaneity bias into the model. As a matter of methodology, it would be analogous to using fitness report grades as an independent variable in a model to predict promotion among officers. Since fitness reports are the primary measure of promotability, one would essentially be modeling the same measure simultaneously on both sides of the equation (Reardon, 1997).

The second reason for its exclusion was a matter of high Pearson correlations to ACADQPR ($r = .510$), CONDQPR ($r = .471$), PRDVQPR ($r = .493$), and a mild correlation to PCRQPR ($r = .294$). This is likely the result of all these things being considered in the assessment of midshipmen military performance by company officers. In fact, a linear regression of PERFQPR on the variables SEX, MINORITY, GROUP1, GROUP3, TRIDENT, NLETTER, ACADQPR, PCRQPR, PCRQPR, PRDVQPR, and CONDQPR produced the results in Table 5.3.

Table 5.3 Linear Regression Coefficients for Military Performance Measure

VARIABLE	n = 6008, Adjusted R^2 = .407		n = 6008, Adjusted R^2 = .391	
	COEFFICIENT	SIG.	COEFFICIENT	SIG.
Constant	**-.605**	**.000**	**-.353**	**.000**
SEX	**-.019**	**.000**	.0024	.920
MINORITY	-.028	.123	**-.049**	**.006**
GROUP1	.018	.183	**.056**	**.000**
GROUP3	**.031**	**.044**	.020	.201
TRIDENT	-.0053	.948	.0034	.967
NLETTER	.0051	.754	.0033	.842
ACADQPR	**.330**	**.000**	**.498**	**.000**
PCRQPR	**-.039**	**.001**	-.014	.227
PRDVQPR	**.274**	**.000**	--	--
CONDQPR	**.566**	**.000**	**.575**	**.000**
F	**412.731**	**.000**	**430.151**	**.000**

Note: Bold indicates significance at .10 level.

The results of the initial linear regression merely indicate that these measures and demographics hold statistical significance in determining military performance. Although this model could not include every possible consideration that goes into this largely subjective measure, its explanatory power is significant, as shown by its adjusted R^2 of .407 and model significance of .000. There are still multicollinearity issues to be considered with this estimation, the most significant of which is a strong correlation between ACADQPR and PRDVQPR (r = .771). This is to be expected, as those with strong grades in a mostly technical curriculum will likely find little difficulty with the bulk

of professional development courses such as navigation and seamanship that are heavily math oriented.

The alternative specification shown in Table 5.3 shows that with PRDVQPR removed the model's overall explanatory power was not altered much. Furthermore, ACADQPR and CONDQPR were shown to be highly significant, both statistically and practically, in determining military performance. Reardon's (1997) conclusions concerning the lack of predictive validity of ACADQPR for promotion to Lieutenant Commander, and the positive significance of PERFQPR, seem to ignore the high correlations between PERFQPR and other USNA performance measures.

The alternative specification in Table 5.3 retained the insignificant variables only to show the impact of removing PRDVQPR from the model on ACADQPR.

The analysis above makes a strong case for eliminating both PERFQPR and PRDVQPR in the logistic regression of STRIPER. However, PRDVQPR was entered in the initial estimation and retained in the model due to high significance and its importance as an academic measure. Thus, the initial logistic regression model of STRIPER included the following performance measures with the following expected impacts: ACADQPR (+), PCRQPR (+), PRDVQPR (+), and CONDQPR (+).

The initial logistic estimation of STRIPER also contained the following midshipmen demographic variables with their expected impact: SEX (-), MINORITY (-), GROUP1 (+), GROUP3 (-), TRIDENT (+), and NLETTER (+). The negative effects of SEX and MINORITY were hypothesized for the same reasons applied in the pre-USNA model. The emphasis on technical competence and being a group 1 (engineering) major

(GROUP1), a long standing naval tradition since the rise of Admiral Hyman Rickover and his nuclear Navy, was expected to be manifest in the positive effect of this variable on USNA's leadership selection. The variable GROUP2, representing majors in the fields of science and math, was left out of the model as the reference group for the variables GROUP1 and GROUP3. TRIDENT, associated with higher academic performance, and NLETTER, associated with leadership skills attained through athletic participation, were both expected to yield positive coefficients.

The results of the initial and final estimation are included in Table 5.4 on the following page. Based on the model's chi square of 478.225 with 10 degrees of freedom and the positive significance of ACADQPR, the null hypothesis was rejected.

Table 5.4 Logistic Regression Estimations for USNA STRIPER Model

VARIABLE	INITIAL ESTIMATION		FINAL ESTIMATION	
	n = 6009, df = 10		n = 6009, df = 8	
	COEFFICIENT	SIG.	COEFFICIENT	SIG.
Constant	**-15.3175**	**.0000**	**-15.3890**	**.0000**
SEX	**-.8034**	**.0003**	**-.8246**	**.0002**
MINORITY	-.2774	.1152	-.2758	.1173
GROUP1	-.0363	.7275	-.0402	.6981
GROUP3	**.3724**	**.0018**	**.3707**	**.0018**
TRIDENT	.2791	.4833	--	--
NLETTER	-.1223	.3817	--	--
ACADQPR	**.7053**	**.0000**	**.7201**	**.0000**
PCRQPR	**-.2646**	**.0029**	**-.2591**	**.0035**
PRDVQPR	**1.0488**	**.0000**	**1.0485**	**.0000**

VARIABLE	COEFFICIENT	SIG.	COEFFICIENT	SIG.
CONDQPR	**2.2230**	**.0000**	**2.2244**	**.0000**
Chi Square	**478.225**	**.0000**	**476.937**	**.0000**

Note: Bold indicates significance at .10 level.

As expected for this sample, being female held a highly significant disadvantage for selection as a striper. Again, due to the relative "newness" of females at the Academy, these findings are not surprising.

Though not quite significant in this model, minority status also seems to create a disadvantage for selection. Academics (both ACADQPR and PRDVQPR) seem highly significant in the odds of being a striper, and much of the academic work at USNA requires strong math and technical proficiency, which is associated with performance on the SAT-Math. The Naval Academy's academic curriculum, therefore, may increase the difficulty of achieving striper selection by those who have not performed well on this standardized test. To the extent that some members of minority groups have SAT-Math scores below the Academy average, this may provide a partial explanation for their lower representation. This hypothesis is supported by the negative correlations between MINORITY and ACADQPR ($r = -.18$) and PRDVQPR ($r = -.213$), the results of the pre-USNA model concerning SAT scores, and studies showing that "the differences between the SAT scores of some racial/ethnic minorities and whites are wider on the SAT-Math than on the SAT-Verbal" (Eitelberg, Laurence, & Brown, 1992, p.160). It's important to note that any slight disadvantage for minorities may merely be the unintentional result of superiors' overemphasis on academic performance as a measure of leadership potential.

A surprising result was the insignificance and negative sign of GROUP1. However, this may be misleading due to positive correlations with ACADQPR (r = .126), PCRQPR (r = .237), and PRDVQPR (r = .292). It may also suggest that overall, academic performance is significant while an engineering orientation, as indicated by choice of major, may not be important. Moreover, regardless of major, all midshipmen, by virtue of surviving an admissions process that emphasizes technical ability and interest three to one over verbal ability, could be considered technically oriented. In this sample, midshipmen in group three majors (humanities/social sciences) still averaged SAT math scores of 650. Finally, of all the groups of majors, GROUP1 held the highest positive simple correlation to military performance. It was retained in the model for comparison to GROUP3.

The variables NLETTER and TRIDENT, representing varsity athletes and Trident scholars, were also found to be insignificant. Neither variable suffered appreciably from correlations with others in the model. The results concerning TRIDENT, in particular, are somewhat surprising. Of the 30 Trident scholars in the entire sample, 11 became stripers. Their representation among stripers is more than triple their representation in the entire sample. The variable's insignificance is possibly due to its low numbers in the sample and correlations with academic measures in the model.

3. Specification and Results of Recursive Model

The recursive effect of some variables was explored in which certain pre-USNA variables were thought to impact striper selection *independent of*, as well as through,

certain USNA performance variables and demographics. This portion of the analysis, however, was not intended to identify every significant predictor of USNA performance measures from admissions data. The intention was merely to highlight admissions variables that are known to predict USNA performance measures and continue to have an independent, statistical impact on striper selection. For a more detailed analysis of admissions data as a predictor of USNA performance, the reader is directed to Reardon's (1997) work. Missing variables reduced the sample size to 5880. Table 5.5, included on the following page, contains the results of the model's final estimation. Numbers in bold indicate significance at the .10 level.

Since many of the sample's variables hold a complex correlation with each other, some variables that were abandoned in earlier models were reapplied in this more comprehensive model of striper selection. Specifically, NLETTER, BLCHIP1, and EAGLE were included and produced significant results. Other variables, such as MILFAM, NAPS, and FOUND were tested but were again found insignificant.
To maintain the sample size, the variable ATHECA was excluded from the model since, though it was significant, its practical significance was deemed small. Furthermore, the inclusion of NLETTER, RECRUIT and BLCHIP1 captures much of the impact of athletic participation on the model.

Table 5.5 Estimation for Recursive STRIPER Model

VARIABLE	n = 5880, df = 22	
	COEFFICIENT	SIG.
Constant	**-12.3398**	**.0000**
SEX	**-.7461**	**.0012**
MINORITY	**-.3584**	**.0517**
ACADQPR	**.7805**	**.0000**
PRDVQPR	**1.2387**	**.0000**
CONDQPR	**2.1980**	**.0000**
PCRQPR	-.1429	.1276
GROUP1	.0734	.4939
GROUP3	**.2667**	**.0433**
NLETTER	**-.2921**	**.0496**
RC	-.0002	.6307
SATMHI	**-.0030**	**.0006**
SATVHI	**-.0018**	**.0215**
TISSTD	**-.0015**	**.0039**
COLLPREP	**-.0366**	**.0744**
BOOST	**1.2801**	**.0054**
RECRUIT	**.5915**	**.0015**
BLCHIP1	**-.4446**	**.0355**
CLSSPRES	**.4633**	**.0000**
STGOVCUM	.1794	.2173
EAGLE	-.2251	.1174
HSWORK	.0464	.3063
HSROTC	-.0793	.2846
Chi Square	**552.601**	**.0000**

The majority of the results are consistent with the findings in earlier models. Though this model's results concerning high school class rank and SAT scores did not support the findings of the pre-USNA model, this is likely due to their high correlations with each other and ACADQPR (+), BLCHIP1 (-), PCRQPR (+), PRDVQPR (+), GROUP1(+/-), GROUP3 (+/-) and RECRUIT (-). In fact, linear regressions of ACADQPR and PRDVQPR showed, as expected, the strong predictive validity of RC, SATMHI, and SATVHI, for both variables. It should also be noted that, for both ACADQPR and PRDVQPR, RC and SATMHI were by far more significant than SATVHI, as measured by each variable's t value and coefficient size. This is expected since the Academy's core curriculum is highly technical and the admissions process favors technical competence. Though their explanatory power in this model seems limited, they were included in the final estimation.

As seen in Table 5.5, the strongest positive predictors of striper selection were CONDQPR, BOOST, PRDVQPR, ACADQPR, CLSSPRES, and RECRUIT. By these results, it appears that a strong academic record and demonstrated conformity to the regulations are significant prerequisites for consideration as a striper. However, there does seem to have been some hope for those whose academic performance was not outstanding. Both RECRUIT and BOOST, variables that had mild to moderate negative correlations to academic variables and scores, showed positive significance, statistical and practical, in the final recursive model. The significance of BOOST may be linked to the participants' perseverance in getting appointments to the Academy. Committing to and surviving an intensive course of study in mathematics and science to

prepare themselves for appointments to the Academy, these individuals likely possessed a strong commitment to succeed once admitted.

The results concerning athletic participation are noteworthy. Since special interest athletes (represented by BLCHIP1) tend to be weaker academic performers (as demonstrated by negative correlations with ACADQPR, PRDVQPR, RC, SATMHI, and SATVHI), the finding that they are not likely to be stripers is not surprising. Analysis revealed that the same reasoning can be applied to USNA varsity athletes who earned letters in their final year at the Academy (NLETTER). However, the positive significance of RECRUIT suggests that a good number of midshipmen candidates recruited for athletic teams may have focused less on earning a letter in their last year and more on succeeding at the Academy. As a whole, they likely possessed characteristics associated with superiors' assessments of good leadership, probably as a result of athletic participation. Moreover, athletic recruits who did not do well in collegiate athletics may have had little choice but to focus their efforts elsewhere. Though RECRUIT was found to have negative correlations to academic measures, much of that correlation may have come from BLCHIP1, which is essentially a subset of RECRUIT. Cross-tabulation analysis revealed that most stripers who were recruited athletes did not earn varsity letters in their senior year.

The impact of conduct grades on both military performance and striper selection is not particularly surprising. Conformity to the regulations is a likely indicator to superiors that an individual is responsible, trustworthy, and conscientious. The findings of Vickers (1995) indicated that trustworthiness and cooperativeness were facets of agreeableness

that were predictive of good leadership ratings, primarily by superiors. The study of midshipmen conducted by Atwater and Yammarino (1993) was similar in finding that "conformity and behavioral coping [the ability to get things done quickly and smoothly] were related to superior ratings of transactional and transformational leadership" (p. 661). Their findings also indicated that such attributes did not predict subordinate ratings of either leadership style. It is noteworthy that conduct grades were found to be a negative predictor, though not significant, of promotion to Lieutenant Commander in Reardon's (1997) study. Furthermore, the results of this study's previous chapter may indicate that conduct grades are significant, negative predictors of promotion to Commander.

It seems clear that, for this sample, females and minorities were at a considerable statistical disadvantage in being selected as a striper. The issue of representativeness and diversity among midshipmen leaders may be worthy of further discussion. As asserted by Eitelberg (1989), "The U.S. armed forces have always emphasized the diversity of their membership"(p.2). The notion of representation has become a measure of military effectiveness in recent history, and a national policy has emerged to achieve goals of ethnic representation in the military's officer ranks (Eitelberg, 1989). Extending the emphasis on these issues to this study, a descriptive analysis of ethnic and female representation is provided. Table 5.6 on the following page provides a percentage breakdown of racial groups comprising the USNA classes of 1980-1985.

Table 5.6

Distribution of Racial Groups for Sample (USNA Classes 1980-1985) & for Stripers in Sample

		Frequency for Sample	Percent	Frequency for Stripers	Percent
Valid	Caucasian	5320	88.5	599	93.7
	African-American	242	4.0	14	2.2
	Spanish-American	159	2.6	9	1.4
	Oriental-American	229	3.8	11	1.7
	Indian/Native American	23	.4	1	.2
	Puerto Rican	36	.6	5	.8
	Total	6009	99.9	639	100.0
	Missing values	5	.1	0	.0
	Total	5	.1		
Total		6014	100.0		

As evident from these percentages, nearly all non-Caucasian groups were under-represented among stripers by about half of their respective percentages. Variances across each class, not reflected in this table, were deemed minimal. Only Puerto Ricans were represented among stripers in numbers corresponding to their percentage of the population. Does this apparent lack of representation present a problem? If stripers are intended to be role models for junior midshipmen and representatives of the Naval Academy, the predominance of whites among them may serve to discourage minority midshipmen and prospective minority applicants. If this continues to be the case, it is consistent with the problems the Navy has had in attracting minorities, especially African-Americans, to the officer ranks (Eitelberg, Laurence, & Brown, 1992).

Female representation among stripers was also found to be disproportionate to their numbers within the sample. Females represented 6.1 percent (n = 365) of the entire sample and 3.9 percent (n = 25) of the stripers. The hegemonic construct of the Naval

Academy as a masculine institution at the time in question would have required a female to be exceptional beyond the normal expectations to be considered for a striper position.

From the results of this chapter, the diagram on page 106 (Figure 5.1) provides a simplistic conceptual illustration of striper selectivity. The diagram represents those factors that, statistically speaking, "come through" the selection process. However, it is not a complete statistical picture of all relationships between variables that work through USNA performance measures. Because of the very complex relationships between all of the variables relevant to striper selection, such a picture would be far too complicated. Rather, Figure 5.1 is a conceptual model supported by all model results in this chapter and the observed simple correlations between variables. Signs (+/-) indicated in the diagram reflect the impact of statistically significant factors on the USNA measures they operate through and on their contribution to a midshipman's odds of becoming a striper. The variables that were included in the figure were those most significant in all the models considered in this chapter. Notice that several factors appear in both upper boxes. This reflects each factor's simple correlation to the USNA performance measures as well as each factor's direct statistical significance in the selection of stripers. The inclusion of the USNA military performance measure is reflective of its designed primacy in the selection process of stripers.

C. CONCLUSION

As stated earlier, the U. S. Naval Academy is a highly selective institution that considers a large variety of factors in the admissions process. Its ultimate goal is produce

outstanding leaders who are well educated and technically competent. In his thesis, Reardon (1997) argued that, based on results indicating that academics offer no predictive validity of officer career potential, the Naval Academy places too much emphasis on technical proficiency and academic performance. However, it appears that the military performance measure, highly predictive of officer career potential, may be an indicator of overall success, including academics, at the Naval Academy. This aggregation of success at USNA is also the primary measure of leadership potential in the striper selection process. How the success of stripers is measured beyond graduation is a significant matter. As already stated, it seems that stripers as whole are not necessarily the most successful junior officers. However, it has been shown that those stripers who survive the first major promotion obstacle and remain in the Navy are likely to resume some superiority over their peers. Thus, the Academy's leader selection process does seem to produce a measure of success in the long run. A description of the selection process and a qualitative analysis of the views of midshipmen may shed additional light on its effectiveness.

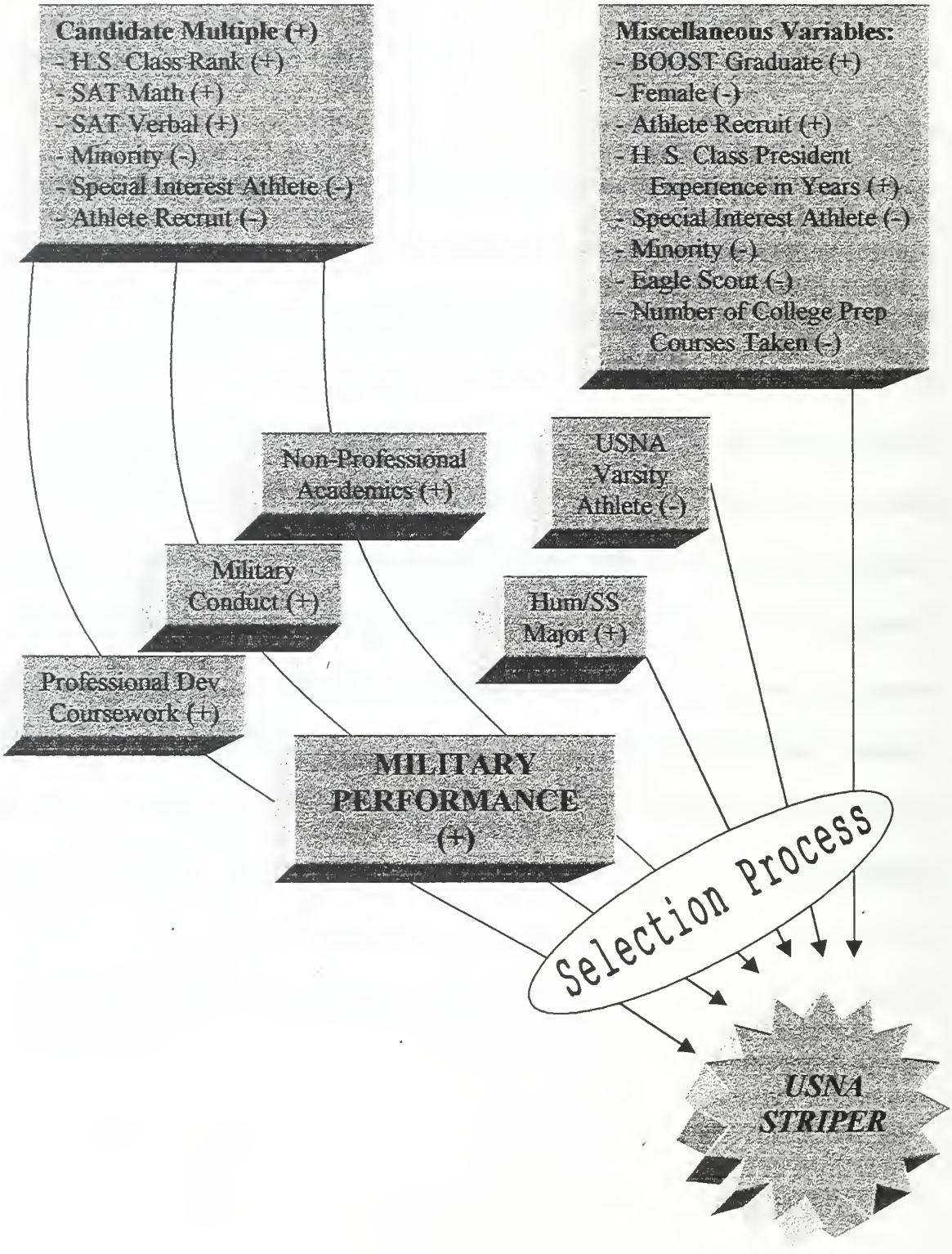


Figure 5.1. Final Conceptual Model of Striper Selectivity

VI. SELECTION PROCEDURES AND MIDSHIPMEN'S VIEWS

A. INTRODUCTION

The previous two chapters provide a quantitative analysis of striper success and their selectivity. The first portion of this chapter presents a description of the current striper organization and selection procedures. The remainder of the chapter focuses on a qualitative analysis of the opinions of both stripers' subordinates and the most recently selected stripers concerning the effectiveness of stripers and the selection process.

B. BRIGADE STRIPER ORGANIZATION AND SELECTION

1. Organization

The current Commandant of Midshipmen Instruction 1601.12 states, "The midshipmen officer organization is charged with the responsibility for the administration and proper functioning of the Brigade within the dual chain of command concept, enhancing the leadership opportunities available to midshipmen" (1996, p.1).

During the academic year, the striper organization is divided by semester into two sets; the first set leads the Brigade during the first semester and the second set leads the Brigade during the second semester. Different stripers are selected for each set to maximize the opportunities for the first class midshipmen. To be consistent with earlier chapters, the striper organization and selection process described in this section applies to Company Commanders and those stripers holding Midshipmen Lieutenant Commander and above positions. As stated in Chapter I, it is these positions that impose significantly

greater responsibility and require the most effort of midshipmen. However, lower ranking leadership positions within the Brigade are chosen by essentially the same technique.

Within each set, the current organization of the Brigade of Midshipmen includes the following positions with their respective grades:

GRADE	BILLET	NO.
MIDN CAPTAIN	BRIGADE COMMANDER	1
MIDN COMMANDER	BRIGADE EXECUTIVE OFFICER	1
	CHIEF STAFF OFFICER	1
	BRIGADE OPERATIONS OFFICER	1
	* BRIGADE HONOR COMMITTEE CHMN	1
	REGIMENTAL COMMANDER	2
MIDN LCDR	BRIGADE MAINTENANCE OFFICER	1
	BRIGADE ADJUTANT	1
	BRIGADE ADMINISTRATIVE OFFICER	1
	* BRIGADE TRAINING OFFICER	1
	* BRIGADE HONOR COMMITTEE VICE CHAIRMAN	1
	* BRIGADE HONOR COMMITTEE VICE CHMN FOR EDUCATION	1
	* BRIGADE HONOR COMMITTEE VICE CHMN FOR INVESTIGATIONS	1
	REGIMENTAL EXECUTIVE OFFICER	2
	REGIMENTAL OPERATIONS OFFICER	2
	BATTALION COMMANDER	6
MIDN LT	COMPANY COMMANDER	30
	TOTAL =	54

Note: * Filled by the same midshipman during both semesters.
(USNA COMDTMIDNINST 1601.12, 1996, p.3-4)

The Brigade organization that was applicable to the sample classes (1980-85) in this thesis differed somewhat from the current organization, but the number and responsibilities of stripers in the MIDN LCDR grade and above has remained approximately the same. The most significant difference concerns Company Commanders,

who numbered 36 for the 1980-1985 era; as evident from the above list of striper positions, the current organization includes 30 Company Commanders.

2. Selection

The striper selection procedures presented here are from the most recent Commandant of Midshipmen Instruction 1601.12 dated October 1996, which delineates different methods of selection for various striper billets. Specific procedures employed in selecting the stripers for the classes of 1980 through 1985 were unavailable. However, references to the procedures found in other regulations/instructions from that time-frame, impressions from Naval Academy military faculty, and the author's own recollection of the procedures, indicate that the method has not changed significantly in the last 15-20 years.

In short, striper boards are convened at the Company, Battalion, and Brigade levels. Selection of the first set Company Commander is normally accomplished at the end of the preceding academic year with some input from the preceding second set stripers. First set Company Commanders are selected at the Company level, using a selection board process in which the Company Officer, Company Chief Petty Officer/Gunnery Sergeant, and the current Company Commander interview prospective candidates. The current selection process benefits from the input of Company Chief Petty Officers/Gunnery Sergeant, who are a highly experienced Navy/Marine Corps senior enlisted personnel assigned to assist Company Officers. The Company Chief Petty Officer/Gunnery Sergeant position is a recent addition to the faculty organization at the Naval Academy and did not exist during the 1980-1985 time frame.

By the time of second set selection, the previous year's Company Commanders have graduated, leaving the second set Company Commander selection to the Company Officer and the Company Chief Petty Officer/Gunnery Sergeant. However, the Company Officer may use input or recommendations from the first set Company Commander.

Higher-level stripers, both first and second set, are first nominated at the end of the previous academic year by the Company Striper Board, comprised of the Company Officer as the senior member, Company Chief Petty Officer/Gunnery Sergeant, and two of the four Company Commanders/Executive Officers for the current academic year. The board nominates, by voting, three candidates for MIDN CAPT/CDR/LCDR billets, with the Company Officer, the senior member, having two votes (U. S. Naval Academy, 1996).

Each Battalion then convenes its own board comprised of the Battalion Officer (a Navy or Marine Corps O-5 or O-6), three Company Officers, the current Battalion Commander or Executive Officer, and two Company Commanders. To avoid unfair representation among the companies, the Company Officers and Company Commanders must be from different companies. The board nominates, by voting, eight candidates for MIDN CAPT/CDR/LCDR billets, with the senior member having two votes (U. S. Naval Academy, 1996).

Following this step in the process, Battalion Officers are required to submit 15 copies of the nominees' summarized grades, their Midshipman Performance Records, and the Company Officer recommendation on each nominee to the Midshipman Performance Office. The Performance Officer provides this information to the Brigade Striper

Selection Board. An annual notice from the Commandant dictates the submission deadlines and board schedules (U. S. Naval Academy, 1996).

"The Brigade Striper Board will consist of the Deputy Commandant (Chairman), the six Battalion Officers, the Brigade Commander and an additional Midshipman Commander from the Brigade or Regimental Staffs" (U. S. Naval Academy, 1996). The Deputy Commandant of Midshipmen is typically an active duty O-6 who assists the Commandant of Midshipmen. Company Officers/Chiefs/Gunnery Sergeants may observe the board as non-voting members if they wish. The board is conducted as a series of interviews in which each candidate is ranked in the categories of appearance/poise, leadership, command presence, and communication skills.

Each midshipman is graded in the categories as he or she responds to a series of questions posed by the board. Answers to three specific questions are graded separately (U. S. Naval Academy, 1996). These questions are obtained from a list in the Midshipman Performance Office and are not viewed by the striper candidates. Three common examples are as follows:

Obviously many strengths have brought you here before the Striper board, but I ask you to list two of your weaknesses and tell us how you plan to work on them, thus improving your overall leadership.

What does "Back to Basics" mean to you, and how would you challenge the First Class to lead the way?

If you had a magic wand, what single problem would you solve within the Brigade? Now you don't have that magic wand, what are you going to do to solve the problem?

Each midshipman's ranking in all categories is totaled to produce a composite ranking, lower numbers indicating a higher ranking. The board members use this composite ranking to compile an overall ranking of all the candidates, from which recommendations will be made to the Commandant for six/five/four stripe billets for the following academic year. The Commandant then submits his list to the Superintendent of the Naval Academy for final approval (U. S. Naval Academy, 1996).

Currently, candidates for the Honor Staff striper billets are nominated by the Ethics Officer and interviewed by the Brigade Striper Board. Those not selected can be considered for other striper billets. Those selected to the Honor Staff fill the positions for the entire academic year. For the classes of 1980 through 1985, the procedure for Honor Staff billets was similar in that they were selected separately from the other Brigade striper positions (U. S. Naval Academy, 1996).

C. ANALYSIS OF SUBORDINATE VIEWS OF STRIPERS

As suggested by several studies discussed in Chapter II, subordinate views of leaders are an important element of leader effectiveness. If leaders are perceived as selfish or untrustworthy, they will have great difficulty engendering the support of followers. Likewise, a superior who underestimates the leadership potential of an individual who is highly respected and admired by peers may unnecessarily handicap a unit's potential for success by promoting someone else who appears to be more conformist and disciplined.

In August 1997, the Naval Academy's Institutional Research Center compiled data from a Quality of Life survey administered to the three upperclasses of midshipmen upon

their return from summer training and leave. Administering this survey has recently become a yearly routine to assess the student body's comprehension of, and satisfaction with, the Naval Academy's policies, and to identify areas for improvement (U. S. Naval Academy, 1997). In particular, it has been used to assess the effectiveness of the striper leadership and organization from the subordinate perspective.

The 1997 survey included 24 questions pertaining to striper effectiveness and leadership ability. The number of midshipmen that responded to these questions ranged from 2545 to 2555. Though each class may have had slightly different views of the stripers, the analysis in this section considers all respondents as a whole. The stripers referred to in this survey, however, include all those in each midshipman's chain of command the previous academic year (1996-1997). Though this includes more than just Company Commanders and MIDN LCDR and above stripers, the results may still offer some insights into the effectiveness of the most senior stripers and the selection process used to assign them. A key commonality between the selection of higher-ranking stripers and the selection of "in-company" stripers such as squad leaders and platoon commanders is each process's origins with the assessment of leadership by individual Company Officers. For this section of Chapter VI, the term "striper" includes all midshipmen assigned to leadership positions at the Academy.

The first question pertaining to stripers asked each midshipman to rate the "overall job done by the stripers" in his/her chain of command the previous year (U. S. Naval Academy, 1997, p.5). Each was asked to rate the stripers on a scale from "very good" to "very poor." Of the 2548 midshipmen who responded, 14.1 percent felt that striper

performance was "poor" or "very poor." Of the remaining midshipmen, 33.4 percent considered the stripers' performance as "average," and 52.5 percent considered it to be "good" or "very good."

Though it may appear disappointing that only slightly more than half viewed striper performance as above average, it must be remembered that these midshipmen are leaders in training. The leadership challenge presented to the stripers is intended to be a learning experience, and subordinate midshipmen may be expecting too much. Stripers are faced with administering policies based on concepts that many midshipmen may not fully understand or support, especially those regarding liberty and privileges.

What may be of more concern are the responses to a variety of questions (numbered 41 through 60) more specifically assessing the leadership and interpersonal skills of the midshipmen leaders. Table 6.1 on the next two pages presents the results. For each phrase, midshipmen responded according to the following scale: "strongly agree," "agree," "neither agree nor disagree," "disagree," or "strongly disagree." Their responses described each midshipman's level of agreement when preceding each phrase with "The stripers..." (U. S. Naval Academy, 1997). Numbers in parentheses indicate the number of responses for each category.

Table 6.1 USNA 1997 Quality of Life Survey Questions Regarding Striper Leadership Qualities

Statement: "The stripers..."	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
41. Were genuinely interested in your personal well-being and progress.	8.8 % (224)	35.6 % (906)	33.8 % (861)	16.3 % (415)	5.6 % (142)
42. Treated you with respect and dignity.	7.6 % (193)	41.3 % (1056)	32.6 % (833)	13.6 % (347)	4.9 % (125)
43. Communicated to you.	9.6 % (245)	44.5 % (1136)	27.4 % (699)	14.1 % (360)	4.4 % (113)
44. Listened to you.	8.2 % (209)	35.2 % (898)	32.5 % (829)	18.3 % (467)	5.8 % (149)
45. Provided the right amount of discipline.	8.0 % (203)	39.6 % (1010)	36.3 % (926)	12.1 % (308)	4.1 % (105)
46. Gave feedback on your performance.	7.9 % (201)	34.7 % (884)	30.6 % (781)	20.7 % (527)	6.2 % (157)
47. Counseled and coached you to help you improve.	7.2 % (184)	29.2 % (745)	33.3 % (850)	23.0 % (586)	7.3 % (186)
48. Were consistent in their treatment of midshipmen.	6.9 % (176)	31.9 % (814)	28.6 % (731)	22.0 % (562)	10.5 % (269)
49. Got midshipmen to work as a team.	7.3 % (186)	32.9 % (839)	38.0 % (970)	15.9 % (406)	5.9 % (150)
50. Had sufficient contact with the midshipmen.	10.9 % (278)	42.8 % (1094)	26.9 % (688)	14.8 % (379)	4.5 % (115)
51. Seemed intent on "catching" midshipmen.	8.9 % (228)	20.5 % (523)	33.1 % (846)	28.8 % (736)	8.6 % (220)
52. Managed through fear and intimidation.	6.2 % (159)	17.2 % (440)	31.9 % (814)	34.7 % (885)	9.9 % (253)
53. Were confident (knew what they wanted to do and how to do it.	9.6 % (245)	44.9 % (1147)	32.5 % (831)	10.2 % (260)	2.8 % (71)
54. Were good role models for the midshipmen.	8.6 % (220)	39.6 % (1011)	34.4 % (878)	12.8 % (326)	4.7 % (119)

Statement: "The stripers..."	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree
55. Displayed trust in you.	7.8 % (200)	35.9 % (918)	33.4 % (853)	17.3 % (443)	5.5 % (140)
56. Were trusted by you.	8.0 % (205)	35.1 % (895)	32.7 % (835)	16.6 % (425)	7.6 % (193)
57. Were able to motivate midshipmen to do their best.	6.2 % (158)	29.7 % (757)	40.4 % (1030)	18.6 % (475)	5.2 % (132)
58. Acted in the best interests of the Naval Academy.	11.3 % (289)	44.5 % (1135)	31.6 % (806)	8.8 % (224)	3.9 % (99)
59. Were qualified for their striper positions.	9.9 % (253)	40.3 % (1030)	32.8 % (383)	12.2 % (311)	4.7 % (121)
60. Represented a diverse cross-section of midshipmen.	13.9 % (355)	36.9 % (940)	29.1 % (741)	12.3 % (313)	7.7 % (196)

Source: U. S. Naval Academy 1997

Summarizing from Table 6.1, negative responses concerning midshipmen stripers ranged from 12.7 percent (statement 58) to 32.5 percent (statement 48). Negative responses are defined here as "disagree" or "strongly disagree" responses to each statement that reflects desirable qualities in leaders. The exceptions are statements 51 and 52, which are both assumed to reflect undesirable characteristics in leaders. In the case of these two questions, negative responses are considered to be the sum of the "strongly agree" and "agree" responses.

The most negative responses regarded statements 47 (30.3 percent) and 48 (32.5 percent). The level of disagreement with both these statements indicates that almost one third of midshipmen subordinates felt that their midshipmen leaders were not concerned enough with their growth and need to be treated fairly. This level of disagreement is more

disturbing when considering that only slightly more than one third agreed to those two statements. Approximately one third neither agreed nor disagreed.

Positive responses regarding the stripers ranged from 35.9 percent (statement 57) to 55.8 percent (statement 58). It may be noteworthy that statements 58 and 53 elicited the two highest positive responses concerning stripers. These statements focused on whether the stripers' actions were in the best interests of the Academy and how confident they were in performing their duties. The former, statement 58, might be considered a measure of dedication to pleasing superiors from the perspective of subordinate midshipmen. The latter, statement 53, might be an indicator of competence. Furthermore, the description of confidence included in this statement might be related to the behavioral coping style (the ability to get things done quickly and smoothly) discussed by Atwater and Yammarino (1993). As revealed in Chapter II, research has shown that this quality is significantly correlated to superior assessments of transformational and transactional leadership.

It may also be noteworthy that statements 47 and 57 elicited the least positive responses from midshipmen subordinates. As already discussed above, the overall response to statement 47 appears to indicate a lack of focus among the stripers on subordinate growth. The low positive response to statement 57 reflects the difficulty stripers had in motivating their subordinates.

Responses to statements concerning the issue of trust also offer important insights. Though the level of agreement to statements 55 and 56 shows that trust was not a problem for approximately 43 percent of the subordinate respondents, approximately 23

percent of the respondents indicated that a lack of trust between subordinates and the stripers was evident. This result is important in light of Lall's (1998) assertion that, based on the work of Hogan et al. (1996), "subordinates' ratings of the degree to which they trust their managers may turn out to be the best single predictor of work group effectiveness, and therefore of leadership" (p.4). Furthermore, Lall (1998) adds that "The capacity to inspire trust is largely considered a function of personality," and therefore personality may contribute to leadership efficacy (p.4).

Most of the survey's inquiries regarding stripers can be related to both leadership selection and development. In fact, those areas receiving the most negative responses might be remedied with improvements in leadership development and mentoring by Company Officers and Company Chiefs/Gunnery Sergeants. However, two statements in particular might be more important to the process of selecting midshipmen leaders. Responses to statements 59 and 60, regarding the qualifications and diversity among the stripers, indicate that although about half of the subordinates felt that the stripers were qualified and sufficiently diverse, almost one fifth of the subordinates thought otherwise and approximately one third were neutral in their opinions in those areas.

One question assessed the impact of the stripers on the midshipmen's adherence to the conduct system and another offered insight into to the perceived level of teamwork and cooperation between stripers and subordinate midshipmen. The first question asked each midshipman to assess the impact of the stripers in his/her company and chain of command on his/her adherence to the conduct system according to the following scale: "a very positive impact," "positive," "neutral," "negative," "very negative" (U. S. Naval

Academy, 1997). Although 14.2 percent assessed striper impact as "negative" or "very negative," 35 percent assessed their impact as "very positive" or "positive." Somewhat less encouraging was the finding that 21.3 percent of the respondents felt that cooperation and teamwork between midshipmen and the stripers was "poor" or "very poor" (U. S. Naval Academy, 1997).

The final question in the survey related to stripers was a direct inquiry into the perceived level of fairness in the leadership selection process at the Naval Academy. Respondents were asked for their level of agreement with the following statement: "The striper selection process is fair and generally void of any gender/ethnic favoritism or bias" (U. S. Naval Academy, 1997, p.12). In this case, only 19 percent of the respondents gave responses of "agree" or "strongly agree," whereas 49.4 percent gave responses of "disagree" or "strongly disagree."

Due to the wording of the statement, it remains unclear whether these subordinate midshipmen felt that the process includes an unfair quota for minorities, or whether they felt that minorities are at a disadvantage. It is also possible that some of the respondents were merely expressing general dissatisfaction with the process, independent of minority or gender issues. In any case, the important finding is the seemingly significant level of dissatisfaction with the selection process among these midshipmen. Though a significant bias may not currently exist in the process, the perception by midshipmen may indicate that measures of leadership are not consistent and universally understood.

Pfeffer (1978) spoke of the importance of using universalistic, instead of particularistic, standards in selecting and promoting leaders. Universalistic standards are

those that can be universally applied to all individuals. They must be explicitly independent of the social relationships, similarity, or familiarity between candidates and those doing the selecting (Pfeffer, 1978). One could argue further that universalistic standards should not be affected by the perceiver prototypes discussed by Lord et al. (1986). Pfeffer (1978) explains,

> *As long as persons believe that positions are allocated based on universalistic standards, particularly when such standards presumably assess ability or merit, the individuals are more likely to be satisfied with the social order and their position in it. This satisfaction derives from the fact that the persons will believe they are where they are because of reasonable and fair criteria* (p.24).

The apparent lack of satisfaction among many of those surveyed may indicate a lack of belief in the standards being used to assess leadership.

The results presented above do not necessarily indict the leadership selection process or the method of assessing leadership at the Naval Academy. However, they do indicate that midshipmen might benefit from improvements in leadership selection and development that consider more input from subordinates and create higher self-awareness among midshipmen leaders. The opinions of some recent stripers provide additional support for such improvements.

D. ANALYSIS OF RECENT STRIPER VIEWPOINTS

In a survey conducted by the author, midshipmen stripers from the class of 1998 were asked about their own experiences as stripers and their views of the striper selection process. The primary objectives of the survey were to determine if the stripers felt they might become more successful officers and whether the striper selection process

adequately meets the needs of the Naval Academy. 102 surveys were distributed; 95 were completed and returned. This number includes stripers from both semesters of the academic year. Demographics on these stripers were collected and revealed that 10.5 percent were female and 12.6 percent were minorities. Estimates from admissions data revealed that numbers for both groups are reasonably proportionate to that of the entire class of 1998.

For this section of Chapter VI, the term striper is defined as it was in earlier chapters as representing Company Commanders and MIDN LCDRs and above. Each midshipman was asked to be as forthright as possible and all responses were given anonymously.

The first question was as follows: "Having been chosen a Brigade striper, do you think that you will go farther in the Navy/Marine Corps than those not selected?" The choices for this question were merely "yes," "no," and "don't know." Surprisingly, only 11.6 percent felt that they would be more successful as officers than those who had not risen to significant midshipmen leadership positions. Of the remaining midshipmen, 34.7 percent did not know if they would go farther, and 52.6 percent explicitly stated that they did not believe they would be more successful than non-stripers.

The second question asked, "Do you think the administration and faculty expect you to go farther that those not selected?" The allowed responses to this question were "yes," "no," and "don't know." In a contrast to the results of the first question, 61.1 percent of the stripers felt that the faculty expected them to go farther, while only 15.8 percent thought the faculty did not expect greater fleet success for midshipmen stripers.

Arriving at any conclusions from the above results may be difficult. One might argue that the stripers' responses reflect a humble disposition and unwillingness to appear overconfident. However, the research by Lall (1998), which was described in Chapter II, indicates that the most successful midshipmen (as measured by class rank) are also the most self-confident, ambitious, and competitive. Considering this and the anonymity of the data collection, it seems unlikely that the stripers were merely being modest.

One possible conclusion is that the stripers may lack confidence in the faculty's measures of leadership that are used to select stripers and assumed to predict fleet success. In fact, one midshipman added his own comment below the first question, suggesting, "It is not necessarily a direct reflection." This conclusion may be further supported by the responses to the next two questions in the survey.

The third question asked the stripers to choose the most important objective of the striper selection process. The choices were as follows: rewarding past performance, identifying those who could benefit most, effective leadership of the Brigade, and identifying/developing future Admirals/Generals. The final choice of "other" gave stripers an opportunity to provide an original objective. Table 6.2 on the following page presents the distribution of responses.

One of the two "other" responses suggested was "choosing those who truly seek to serve selflessly and give everything they can for others." The other alternative objective offered by one striper was "selecting effective leaders who have the respect of their classmates/subordinates." The striper who offered this objective added that "peer evals must be used."

Table 6.2 Primary Goal of Striper Selection Process

	Frequency	Valid Percent
Rewarding past performance	5	5.3
Identifying those who could benefit most	3	3.2
Effective leadership of the Brigade	83	88.3
Identifying/developing future Admirals/Generals	1	1.1
Other	2	2.1
Total	94	100.0

As can be seen from Table 6.2, the majority of stripers felt that the process should be most concerned with choosing effective leaders for the Brigade. This is not a particularly surprising result, as this response would be expected from officers in training. However, one midshipman striper, though he felt that the selection process should be most concerned with choosing effective Brigade leaders, offered the comment, "In reality, it is based on rewarding past performance." By the addition of this comment, this respondent seemed to suggest a feeling that identifying effective Brigade leaders and rewarding past performance are not necessarily congruent goals. Vickers (1995), whose research is described in Chapter II, offers a similar opinion suggesting that past behavior and performance do not necessarily predict effective leadership.

The more significant result came from responses to the follow-on question, "In light of your above choice, does the current selection process need to be changed/improved to achieve this goal?" In response to this question, 57.9 percent of the

stripers in the sample felt that the selection process needed to be improved while 23.2 percent felt that the process was sufficient to achieve its goal. Of those who thought the process required improvement, two added comments about the need for peer evaluations, and one striper suggested that what was needed was "more of a personal interview screening to see what's not on paper." This comment implies that the striper selection process might be more effective through a more comprehensive assessment of personal qualities relating to leadership.

E. CONCLUSION

The analysis presented in this chapter suggests that the Academy's leadership selection process may be undervaluing certain leadership skills, such as the ability to inspire trust and meet subordinates' needs. There is little doubt that the midshipmen chosen for leadership positions at the Academy are some of the most promising leaders among midshipmen. However, it does appear reasonable that the selection process may be missing key personality traits and qualities that, if overlooked or overshadowed, may be handicapping unit effectiveness within the Brigade. The survey data, though just a snapshot of subordinate satisfaction with midshipmen leaders, do suggest a certain friction between stripers and a portion of the Brigade. Even among many chosen to be stripers, there is a feeling that the personality traits and qualities of those being considered must be better assessed. The unsolicited comments on the surveys concerning peer evaluations and the majority of votes for selection improvement support this conclusion. If those selected are cognitively competent midshipmen who need better interpersonal leadership

skills, an incomplete model of leadership is probably being supported and promoted. As suggested in Chapter IV, the result may be midshipmen leaders who are no better prepared to face leadership challenges as a junior officer that their non-striper peers.

VII. CONCLUSIONS AND RECOMMENDATIONS

This study focused on a variety of issues relevant to the leadership selection process at the U. S. Naval Academy. The ultimate goal was to investigate whether the type of midshipman leader most valued by the Academy's leadership assessment methods is consistent with the type of leader most valued by midshipmen and fleet superiors. As role models for midshipmen and among the premium graduates of the Academy, it seems reasonable that stripers should represent the best leadership qualities that the selection process can identify.

A. RESEARCH QUESTIONS ADDRESSED

As a continuation of Reardon's (1997) work, the promotion success of past Brigade leaders was tested for Reardon's (1997) cohorts at the O-5 promotion board. Since Reardon found that stripers did not seem to have a statistically significant advantage in being promoted to O-4, the intention was to determine if the Academy's leadership selection process identified individuals who are more successful than non-stripers in the transition to senior officer (O-5). Thus, the first question addressed in this research asked,

- How have Brigade leaders performed in the fleet, in terms of promotion, relative to other Naval Academy graduates who did not hold significant Brigade leadership positions?

The results of Reardon's (1997) work, of course, seem to suggest that the first years following graduation may act as a leveling ground for stripers and non-stripers. In other words, despite their higher potential identified during the selection process at the

Academy, stripers as a whole do not display more promotable qualities as young junior officers than their non-striper peers. The result is the absence of a statistically significant advantage for stripers at the first major gateway to a career in the Navy (Reardon, 1997). From Reardon's (1997) work, the reasons for this counter-intuitive result are difficult to assess. As suggested earlier, it may be that stripers are no more prepared for the demands of junior level leadership in the fleet Navy than non-stripers.

The results of this study, however, showed that those stripers who pass through the first major gateway to a naval career, promotion to O-4, emerge from the O-5 promotion board as a highly successful group. It may be that the primary qualities identified by the striper selection process are those that only become significant and highly desirable to fleet superiors at the threshold of becoming a senior officer. In this case, the striper selection process may be undervaluing certain qualities and leadership skills important to success at the junior officer level.

Following the discovery that stripers appear to have a statistical advantage for promotion at the Commander promotion board, the second question addressed in this research asked,

- What were the midshipman candidate and midshipman predictors of selection for past Brigade leaders?

The results of Chapter V indicate that stripers are among the very best candidates who are admitted to the Naval Academy and the most successful midshipmen, especially in academics, before being selected. It was shown that those candidates who emerged as leaders in their high schools and those recruited athletes who were not highly

disadvantaged in academics did have a high success in being selected for a striper position. However, it was also shown that athletes of particular interest to the Naval Academy's Athletic Association were highly unlikely to be selected, seemingly due to academic performance. The results also showed that former eagle scouts were also unlikely to be chosen, though the statistical significance of this result was relatively weak. Finally, for a variety of reasons, minorities and females were also unlikely to be chosen.

Academic success and conformity to the regulations at USNA certainly appear to be the best predictors of striper selection among USNA performance measures. Both areas were shown to have a high positive impact on military performance grades at USNA as well. These findings are not surprising, as academics and conduct are probably the two most focused upon areas at the Naval Academy. Outstanding performance in these areas may be viewed as the most crucial qualification for potential role models and leaders in the Brigade. Assuming this to be true, using academic performance and conduct grades as at least a backdrop for selection seems to be a sound strategy to encourage excellence in these areas. Furthermore, it may appear to superiors that outstanding performers in academics and conduct hold the key attributes for leadership of the Brigade and of sailors in the Navy. However, the results leave unanswered whether the focus on academics and conduct grades is accompanied by inattention to other qualities predictive of effective leadership.

To possibly shed more light on the effectiveness of the striper selection process, the third question addressed in this thesis asked,

- How are Brigade leaders selected, and what are the expectations of their performance?

Examination of the selection process and the views expressed by midshipmen shed additional light on the effectiveness of the striper selection process. The selection process essentially uses a series of boards that examine the candidates' performance at USNA. For those being considered for MIDN LCDR and above positions, preliminary boards culminate in a one-time performance before a final board that poses questions to the candidates.

The expectations of superiors at the Academy are implicit in the instructions concerning the Brigade organization and the types of questions asked during the selection process. Primarily, Academy superiors expect stripers to be responsible for the daily routine as well as set the example for their peers and the junior classes. The opinions expressed by midshipmen indicate that quite a few expect more of stripers, especially with respect to interpersonal skills and trustworthiness. Among those midshipmen surveyed, a significant number believe that the striper selection process does not fairly assess the leadership ability of potential midshipmen leaders. Even the views of recent stripers indicate a concern that the process does not adequately address the leadership needs of the Brigade. Some views suggested the need for peer evaluations and a more personal screening process to better determine the personal attributes of potential stripers.

The final question addressed by this research asks,

- Can the process of selection be improved to maximize the benefit for the Brigade and improve the career success of the Academy's premier student leaders?

The answer to this question lies in a macro-analysis of all the results in this thesis. Considering stripers' lack of above average fleet success in the early portion of their careers, the apparent emphasis on academics and conduct in the selection process, and the apparent dissatisfaction of many midshipmen with the method used to assess and select leadership at the Academy, it appears that the selection process can certainly be improved. One might argue that, due to inexperience, the views of midshipmen should not be considered in drawing this conclusion. However, an equally valid argument might be that midshipmen perceptions of leadership are an important consideration if the faculty (i.e., Company Officers and other staff members) and stripers at the Academy hope to have a positive impact on the leadership development of all midshipmen.

B. RECOMMENDATIONS

1. Policy

In light of the results obtained in this thesis, a number of policy recommendations aimed at improving the leadership selection process at the Academy come to mind. First, the Naval Academy should pursue a more comprehensive means of assessing leadership among midshipmen. Academics and adherence to the regulations should continue to be emphasized, but additional consideration should be given to more personal qualities of midshipmen if the Academy is to produce leaders fully worthy of the dedication and sacrifice of our enlisted sailors and marines. Paying closer attention to interpersonal skills and making midshipmen more aware of their personal qualities will promote a leadership model that better balances the needs of subordinates with the need to "get the job done."

According to LCDR Wilbur Hall of the Leadership, Ethics, and Law Department at the Naval Academy, efforts are taking place to incorporate a 360-degree evaluation system of assessing midshipman performance (personal communication, June, 1998). Such a system considers input from subordinates, peers, and superiors to assess individual performance. At this time, the initiative is in an experimental phase. However, preliminary results have been positive and encouraging (LCDR Wilbur Hall, personal communication, June, 1998). In light of the preliminary findings and the research in this thesis, the Naval Academy should continue to pursue this initiative with a particular focus on improving leadership assessment.

Another possibility that should be explored is the establishment of a leadership assessment center that uses the most recent advances in leadership research to give midshipmen a more comprehensive picture of their leadership abilities from a point of view outside the chain of command. Using observations during group exercises, personality inventories, and interviews, midshipmen might gain greater insight into their own strengths and weaknesses and behavioral tendencies. Such feedback could heighten individual awareness and also be used by superiors to match individuals with leadership positions that mutually enhance the performance of the Brigade and the development of each individual midshipmen leader.

2. Further Research

The major limitation for Reardon's (1997) results and those in this study concerning the promotion likelihood of stripers is the fact that neither study has assessed

whether stripers remain in the Navy at a higher rate than non-stripers. Though adjustments were made in both studies to exclude those who voluntarily left the Navy before the O-4 and O-5 promotion boards, neither study addressed the retention characteristics of stripers. Further research might incorporate such analysis to determine if those considered to be the Academy's best leaders display higher or lower retention tendencies than non-stripers. The approach used in Reardon's (1997) work and this thesis might also be extended to test striper success at the O-6 or flag officer promotion level, or in being assigned to a high-profile job assignment.

Another approach might explore the characteristics of those stripers who successfully made it through the O-5 board. It may be that these individuals possessed the most comprehensive set of leadership qualities, and the stripers who failed to promote to O-4 or O-5 were lacking in certain qualities or attributes. A promotion analysis that only includes stripers might reveal certain qualities that distinguish those who were selected for promotion from those who were not.

Further research might also include a comparison of the Naval Academy's leadership selection and assessment with that of the U. S. Military Academy at West Point and the U. S. Air Force Academy. Recent advances in leadership development at West Point, in particular, might serve to broaden the perspective used to select leaders at Annapolis.

Another approach not pursued in this study might focus on differences in characteristics and career success between Company Commanders and the remaining stripers in this study's sample. Since Company Commanders run their companies under

the guidance of USNA Company Officers, it may be that each Company Officer is somewhat more careful in selecting an apprentice than choosing an individual for a more remote staff command position. Furthermore, data from the author's survey suggest that midshipmen Company Commanders find their experiences and leadership development more rewarding than midshipmen who were commanders or high-ranking members of staffs high in the Brigade organization's hierarchy. In fact, a recent Brigade Commander stated, "This is a good job, but not a great job as far as working with a small group of subordinates like a JO [junior officer] in the Fleet or FMF [Fleet Marine Force] will have to deal with."

Finally, a qualitative approach to researching leadership assessment and selection at the U. S. Naval Academy, using extensive surveys and interviews, might better get to the heart of what the Academy values in its midshipmen leaders and how such values affect the leadership development of every midshipman.

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